OCT 27 1923
Medical Lib.

Registered at the G.P.O., Sydney, for Transmission by Post as a Newspaper. Published Weekly. Price 1s.

THE

MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—10TH YEAR. SYDNEY: SATURDAY, AUGUST 18, 1923. No. 7.

Surgical Instruments

We are pleased to announce that good general stocks of our Surgical Instruments have arrived and that regular supplies are now coming forward. Members of the Profession are cordially invited to visit our Show Rooms.

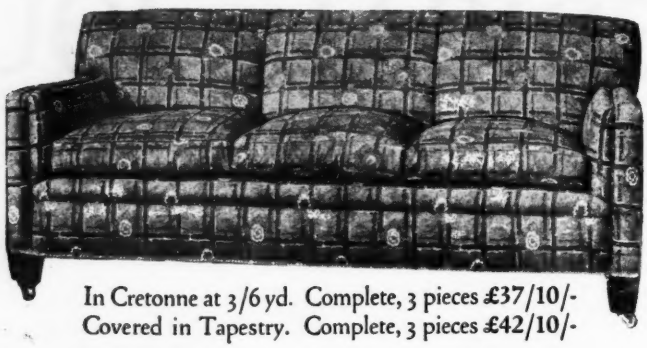
Allen & Hanburys (Australasia) Ltd.

Instrument Makers to H.M. Army and H.M. Navy

AUSTRALASIAN BRANCH:

B.M.A. BUILDING : Elizabeth Street, Sydney

Beard Watson's Beautiful Furniture



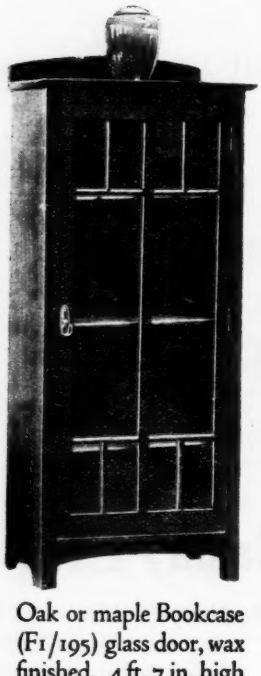
3-Piece Upholstered Suite (A1/267) as illustrated comprising one large Settee with loose cushions, two comfortable Arm Chairs, en suite

Settee only £18/10/-
Chairs each £9/15/-

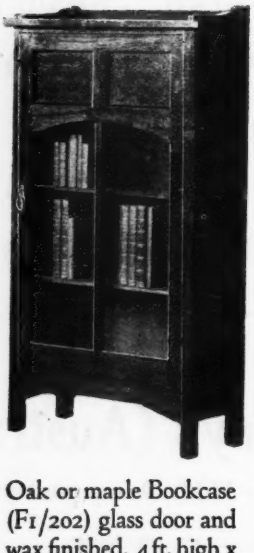
The same covered in Tapestry:
Settee only £21/10/-
Chairs each £10/15/-

In Cretonne at 3/6 yd. Complete, 3 pieces £37/10/-
Covered in Tapestry. Complete, 3 pieces £42/10/-

Oak Jacobean Gate Leg Table, D7/248
Size open 2 ft. 9 in. diameter.
Size closed 2 ft. 9 in. x 8½ in. £8/17/6



Oak or maple Bookcase (F1/195) glass door, wax finished. 4 ft. 7 in. high x 2 ft. wide. £8/15/-



Oak or maple Bookcase (F1/202) glass door and wax finished. 4 ft. high x 2 ft. 6 in. wide. £7/10/-

D4/161. Oak Jacobean Taboret 16 in. x 16 in. top, 18 in. high. 52/6

D4/162. Oak Jacobean Taboret, top 15 in. diam., 18 in. high. 55/-

Beard Watson & Co. Ltd
GEORGE STREET, SYDNEY.

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—10TH YEAR. SYDNEY: SATURDAY, AUGUST 18, 1923 No. 7.

Table of Contents

ORIGINAL ARTICLES— PAGE.
"Some Child Welfare Centres in Great Britain, Their Methods and Results," by ROBERTA H. M. JULL, M.B., C.M. 161
"Recent Investigations into Growth of Bones in Infancy," by E. J. DALYELL, O.B.E., M.B. .. 166

REPORTS OF CASES—
"Fracture Dislocation of Cervical Vertebræ," by GEORGE BELL, O.B.E., M.B., Ch.M. 172
"An Unusual Obstetric Case," by H. O. LETHBRIDGE, M.B.E., M.B., Ch.M. 172

REVIEWS—
Poisonous Plants 172
Gynæcological Treatment 173
The Clinical Examination of the Nervous System 173
Applied Physiology 173
Popular Hygiene 173
The Examination of the Lung 174
Deep X-Ray Therapy 174

LEADING ARTICLES—
The Medical Practitioner and the Masseur 175

CURRENT COMMENT—
Hyperplasia of the Epithelial and Connective Tissues of the Breast 176

ABSTRACTS FROM CURRENT MEDICAL LITERATURE—
Physiology 178
Biological Chemistry 179

BRITISH MEDICAL ASSOCIATION NEWS— PAGE.
Scientific 180
Medico-Political 183
Nominations and Elections 183

POST-GRADUATE WORK—
Special Post-Graduate Lectures in Melbourne .. 184

CORRESPONDENCE—
The Leucocytes in Health and in Disease 184
The Clinical Thermometer 184
On the Diagnosis and Other Aspects of Pulmonary Tuberculosis 184
Post-Graduate Work in Melbourne 185
"Ethanesal" 186
Hypnotic Suggestion 186
The Treatment of Influenza 186
Doctor and Chemist 186

NAVAL AND MILITARY—
Appointments 187

OBITUARY—
George Edward Rennie 188

PROCEEDINGS OF THE AUSTRALIAN MEDICAL BOARDS
New South Wales.. 188

MEDICAL APPOINTMENTS 188
MEDICAL APPOINTMENTS VACANT, ETC. 188
MEDICAL APPOINTMENTS: IMPORTANT NOTICE 188
DIARY FOR THE MONTH 188
EDITORIAL NOTICES 188

SOME CHILD WELFARE CENTRES IN GREAT BRITAIN, THEIR METHODS AND RESULTS.[1]

BY ROBERTA H. M. JULL, M.B., C.M. (Glasgow),
Medical Officer for Schools, Perth, Western Australia.

WHEN the Secretary of the Branch was good enough to ask me to read a paper tonight descriptive of the work of child welfare centres as seen by me during my visit to Great Britain last year, I was glad to consent because I realized that there is no better way of profiting from what one has seen, than to set down in a concrete form the impressions received. These are apt to remain vague and nebulous unless put into writing. It is good to be obliged to take stock of what has been gained.

The deepest and most definite impression left on my mind is the enormous advance made in all kinds of preventive medicine since I qualified at Glasgow in 1896. After an absence of so many years from medical work in that city, the great changes which had taken place, were much more evident than they would have been had I remained on the spot and seen their gradual development.

Welfare Centres in Perth.

It so happened that circumstances made Perth in Scotland the most convenient centre for my first inquiries into both medical inspection of schools and child welfare work. Although the population is small, the proportion of slums is high. Many of the old-fashioned and bad type of Scottish city houses are still standing. The Meal Vennel and Skinner's Wynd which are mentioned by Scott in the "Fair Maid of Perth," are much as they were a hundred years ago. Although interesting historically, they are certainly very bad from an hygienic point of view. Their dark, narrow and "common" stairs lead to homes which consist of two or three rooms with low ceilings and tiny windows. It is no wonder that under such conditions many poor infants die at an early age.

I was unable to obtain the report of the medical officer of health for 1921, but the population in 1920 just before the last census was taken was about 36,600. During that year 817 children were born: of these six died on the day of birth, twenty within the first week and thirty-two within the first month. That is to say, nearly 41% of the total infantile deaths for the year took place under five weeks of age. Of these 43% were due to premature birth. Of the children born a considerable percentage, 9%, were illegitimate and, as was to be expected, the highest mortality occurred among them. It was with the Medical Officer of Health of the Local Authority that I visited the child welfare centre. Perth has but one centre. It is

[1] Read at a meeting of the Western Australian Branch of the British Medical Association, June 29, 1923.

supported by the Municipality, or as it is called there, the Local Authority, by a grant from the Ministry of Health and by voluntary subscriptions. The centre there and in many other places has been established in an ordinary dwelling house. This has been altered and made suitable for the carrying on of the work. It stands at a corner where two very populous streets meet in a poor part of the town. Two consultations are held each week by the Medical Officer of Health. Our visit was not paid on one of these consultation days, it was, however, paid on an afternoon for instruction in sewing. In one room there were about twenty mothers with their babies; they were being taught how to cut out and make garments by a voluntary helper. In another room the head of the centre was interviewing a very young unmarried mother who had attended the clinic for some time both before and after the birth of her child. She was out of employment and had come to ask that she might be provided with milk in order to enable her to keep on nursing her baby. This provision of milk to nursing mothers is a feature at all centres.

An effort was on foot to provide a maternity and malnutrition home in connexion with the centre. There was every likelihood of one being opened this year.

Welfare Centres in Aberdeen.

The next centres I saw were in Aberdeen; here there were six. Several of these were opened fourteen years ago under a voluntary scheme. They have now been taken over by the Local Authority and Ministry of Health, but much of the work is still done by voluntary helpers. Most of the centres are ordinary houses in populous districts, but in one instance an army hut had been obtained and divided into rooms by wooden partitions. The medical officer in charge was a man. He holds eleven consultations a week, lectures to the mothers and to the welfare workers *et cetera*.. In Aberdeen besides the centres there are a day nursery and two homes for mothers. One near the centre of the city is for unmarried mothers who go out daily to work, but return throughout the day as far as practicable to nurse their babies. They have the care of their babies during the night. There was provision made in this home for ten mothers and ten babies. The second is on the outskirts of the city where an old mansion house has been adapted and added to. It is used as a rest home to which tired mothers can go either before or after confinement for two or three weeks. A certain number of infants or young children suffering from malnutrition are also taken into the home. There are generally ten to twelve mothers and twenty to thirty babies as inmates.

I visited one centre when it was in full swing. In one room the doctor was advising mothers about such babies as the nurse-in-charge selected for him to see. In a second babies were being undressed and weighed. In a third mothers were buying garments and either paying money into or withdrawing it from the Penny Savings Bank. In a fourth a teacher from the Domestic Science Centre (Education Department) was giving a demonstration of how to make "white puddings" from oatmeal, salt and lard. These puddings are a nutritious and tasty dish and are much used by the poorer people in Scotland. In a cold climate they are very suitable and they also have the advantage of being very inexpensive. The average cost of each pudding made at home is about one penny half-penny. One makes a satisfying meal for an adult with an average appetite. During the afternoon tea and a scone were provided for every mother at a very low cost. This is considered an important item at all centres, the women are much more inclined to talk and to become friendly while the little meal is in progress.

Welfare Centres in Birmingham, Glasgow and Edinburgh.

In Birmingham, Glasgow and Edinburgh also, welfare centres were visited.

In Birmingham an ante-natal clinic was in progress. The information was there obtained that expectant primipara are taking advantage of the clinic in constantly increasing numbers. Through its agency a considerable number of lives have undoubtedly been saved. The expectant mother seen on the occasion of my visit was a primipara with albuminuria whose condition had much improved since she had first been seen. We all know how often this symptom is unrecognized and untreated until too late for both mother and child.

At Birmingham, too, I saw Witton Hospital which is at a considerable distance from the city. It is used for marasmic babies who are cared for under a strict barrier system. The results have been very excellent. The expenditure naturally is heavy. There is one nurse for every two babies and each is very fully employed. Every baby's belongings are kept entirely separate and the nurses' hands have to be washed between each item of work done.

In Glasgow a special feature was a home for tuberculous and rhachitic children, while in Edinburgh one especially devoted to the treatment of infants and children suffering from malnutrition was seen.

It was a matter for great regret that I was unable to visit Dr. Ballantyne's ante-natal clinic. This clinic attached to the maternity hospital was, I believe, the first of its kind in Great Britain. It has been quietly at work for many years. I can recall an article on the value of and necessity for ante-natal work, written by Dr. Ballantyne in *The British Medical Journal* more than twenty years ago.

Welfare Centres in Liverpool.

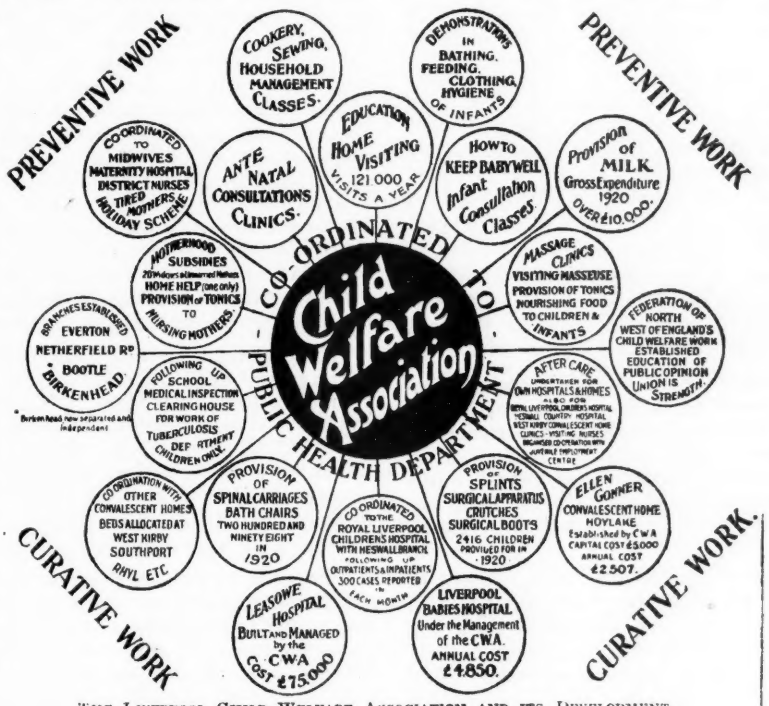
It was in Liverpool, however, that the most complete of all the systems was seen. The accompanying diagram shows how many and varied are its activities. This Child Welfare Association was launched about sixteen years ago chiefly by the efforts of Miss Margaret Beavan, J.P. who is still its chairman. Dr. Charles Macalister, the foremost specialist in children's diseases in Liverpool, was and is one of its most enthusiastic supporters.

It is claimed by the Association and apparently with reason that "there is no organization for the

care of child life either in Great Britain or America which covers so extensive a field." The fact that it was entrusted with the national representation of child welfare work for Great Britain at the International Child Welfare Congress in Brussels last year shows the estimate placed upon its work by the Government.

It began in 1906 as a voluntary, independent body to deal with children of school age. The need for such work had become apparent very soon after the establishment of the compulsory medical inspection of school children. The first work of the Association was among crippled and delicate children. This and other work among older children continued until 1915 when a general movement took place throughout Great Britain to combat the enormous wastage of infant life. The *Ministry of Health Act* was passed and grants from the Treasury were made available for infant welfare work. Local authorities were subsidized pound for pound to enable them to open child welfare centres and to pay welfare visitors.

The more the conditions of home life were investigated in Liverpool and this was true of other places, too, the more obvious became the need to add furtherbranches to the work. In 1918 a child welfare training school was inaugurated. Home helpers were added to the official staff and classes of instruction for mothers were opened. Motherhood grants were made to twenty widows or unmarried mothers to enable them to stay at home and care for their children. The following year came cookery centres and a scheme of training for workers drawn up and approved by the Medical Officer of Health. After-care clinics were opened for children who had left hospitals. By far the larger part of the work is supported by voluntary contributions. Treasury grants are only available for certain sections. Here it is of interest to note that the Geddes ax though laid at the root of the child welfare work of the United Kingdom was withdrawn; the value of the work was recognized as too great to be destroyed or even crippled. The day I visited Copperas Hill, the first centre opened and still the chief centre, there were literally hundreds of mothers and children in attendance. The large staff were all busily engaged in their several departments giving advice, investigating cases and so on. On the uppermost storey of the house I was shown the Coordination Department, the brain of the whole scheme. There all records are kept and each individual person is dealt with and considered as a member of his family and of the community. A definite effort is made by this department to raise the standard of family life as a whole, to give help which will be of permanent benefit, rather than to administer merely temporary aid. Every morning a large number of requests for aid of all kinds pour in; these have to be sorted out and tabulated. Directions are then given to the infant and health visitors. In Liverpool and at all other centres there is always at least one fully trained nurse who has also had some special training in child welfare work. She is responsible for the selection of such patients as need medical advice and has to keep in touch with all the branches of the work which need special technical knowledge.


PREVENTIVE WORK
PREVENTIVE WORK
CURATIVE WORK
CURATIVE WORK
CO-ORDINATED TO
PUBLIC HEALTH DEPARTMENT
Child Welfare Association
COOKERY, SEWING, HOUSEHOLD MANAGEMENT CLASSES.
DEMONSTRATIONS IN BATHING, FEEDING, CLOTHING, HYGIENE OF INFANTS
EDUCATION HOME VISITING 121 000 VISITS A YEAR.
HOW TO KEEP BABY WELL Infant Consultation Classes
PROVISION of MILK Gross Expenditure 1920 OVER £10,000.
CO-ORDINATED TO MIDWIVES MATERNITY HOSPITAL DISTRICT NURSES TIRED MOTHERS, HOLIDAY SCHEME
ANTE NATAL CONSULTATIONS CLINICS.
MOTHERHOOD SUBSIDIES 20 Widows & Unmarried Mothers HOME HELP (one only) PROVISION of TONICS TO NURSING MOTHERS
MASSAGE CLINICS VISITING MASSEUSE PROVISION OF TONICS NOURISHING FOOD TO CHILDREN & INFANTS
FEDERATION OF NORTH WEST OF ENGLAND'S CHILD WELFARE WORK ESTABLISHED EDUCATION OF PUBLIC OPINION UNION IS STRENGTH
BRANCHES ESTABLISHED EVERTON NETHERFIELD Rd* BOOTLE BIRKENHEAD
* Birkenhead now separated and independent
FOLLOWING UP SCHOOL MEDICAL INSPECTION CLEARING HOUSE FOR WORK OF TUBERCULOSIS DEPARTMENT CHILDREN ONLY
AFTER CARE CONVALESCENT HOME FOR CHILDREN FROM OWN HOSPITALS & HOMES ALSO FOR ROYAL LIVERPOOL CHILDREN'S HOSPITAL NEWSHALL CONVALESCENT HOME CLINICS - VISITING NURSES ORGANISED CO-OPERATION WITH SUITABLE EMPLOYMENT CENTRE
CO-ORDINATION WITH OTHER CONVALESCENT HOMES BEDS ALLOCATED AT WEST KIRBY SOUTHPORT RHYL ETC
PROVISION OF SPINAL CARRIAGES BATH CHAIRS TWO HUNDRED AND NINETY EIGHT IN 1920
CO-ORDINATED TO THE ROYAL LIVERPOOL CHILDREN'S HOSPITAL WITH NEWSHALL BRANCH FOLLOWING UP OUTPATIENTS & INPATIENTS 300 CASES REPORTED IN EACH MONTH
PROVISION OF SPLINTS SURGICAL APPARATUS CRUTCHES SURGICAL BOOTS 2416 CHILDREN PROVIDED FOR IN 1920
ELLEN GONNER CONVALESCENT HOME NOYLAKE Established by C.W.A. CAPITAL COST £5.000 ANNUAL COST £2.507.
LEASOWE HOSPITAL BUILT AND MANAGED by the C.W.A. COST £75.000
LIVERPOOL BABIES HOSPITAL Under the Management of the C.W.A. ANNUAL COST £4.850.

THE LIVERPOOL CHILD WELFARE ASSOCIATION AND ITS DEVELOPMENT.

One very special feature of the work in Liverpool is the Corporation Milk Depôt. From this all welfare centres and a number of other agencies which deal with children, are supplied. At every centre the doctor in charge prescribes the strength of milk suitable for the patients seen each day. These prescriptions are forwarded each evening to the manageress of the Milk Sterilizing Depôt. She has the correct quantities made up each morning and despatched to the centres where they are needed. I visited the depôt with Dr. Ruby McBirnie, the medical officer in charge of the child welfare work of the Health Department. It made me long more than ever for a similar scheme here.

Personnel of Welfare Centres.

It was of special interest to me to find that in all the larger cities the child welfare section of the Public Health Department was under the direction

of a medical woman and also that a very large number of the doctors in charge of centres were women.

At the Ministry of Health, Whitehall, Dr. Janet Campbell is responsible for the whole of the child welfare work in England and Wales. The Scottish Board of Health, however, has a man at the head of its scheme.

There exists a division of opinion as to whether these child welfare associations are best carried on by voluntary or by paid workers. Probably the best method is that which at present obtains when both kinds of helpers work together.

The fact that voluntary workers are apt to be uncertain in their attendance for various reasons and that the same demands cannot be made upon them for obedience to rules and the carrying out of orders is certainly a drawback. Further, they have no recognized standard of knowledge and sometimes not much discretion. Yet so many of them have trained themselves and are so devoted and assiduous in carrying out their work, that it would be very detrimental to the community should they cease from their labours. Nor must it be forgotten that it was by voluntary workers centres were first opened and carried on.

Since the passing of the Act in 1915 and the granting of money by the Ministry of Health, certain qualifications have been laid down for the paid workers who must be attached to every centre.

Health visitors must hold either a sanitary inspector's certificate or a health visitor's certificate. They must also have had hospital experience or previous experience. Child welfare visitors must be nurses who have undergone a three years' course of training. They must hold a certificate from the Central Midwives' Board or a health visitor's certificate.

The shortest course provided for in the Board of Education's "Regulations for the Training of Health Visitors" was a full-time course of one year's duration, but owing to the difficulty of obtaining trained nurses who have already undergone three years' professional training, it has since 1922 been decided to approve of a part-time course of less than one year's duration at certain recognized institutions in respect of fully trained nurses.

Child welfare visitors must be trained nurses (three years) and must hold a Central Midwives' Board certificate or health visitor's certificate.

Routine Followed in Welfare Centres.

The routine followed in all centres as regards infant welfare work is much the same and may be detailed here. If a mother has attended an antenatal clinic she would automatically come back to the baby clinic after her confinement. When she has not done so, the information obtained under the *Notification of Births Acts* 1907 and 1915 is sent to the medical officer of health for the district. This enables the local centre to get into touch with her. She is visited at once should she not be under the care of a doctor or a midwife. Should she be so cared for, the visit is paid ten days after the birth of the child. The infant welfare visitor then explains the advantages the centre offers her and asks her to attend. When she does so for the first time, she is presented with a small cardboard booklet in which are printed "Hints for Mother" and "Golden Rules for Baby." These differ slightly at different centres, but not to any important extent. There are also appropriate spaces for recording the age and weight of the child and a chart upon which is indicated by a curved line the number of ounces which a healthy baby should gain in weight each week. At the end there is a page for savings bank records. This booklet the mother is expected to keep and to produce upon each visit.

At the centre is kept a record card for each child. On one side of this are entered minute particulars as to the occupation, age, health *et cetera* of the parents, their previous history, the conditions of the home and what previous births, if any, have taken place. There is also space for detailed notes about the baby and a weight chart. On the reverse side are spaces for recording the visits made by the child to the centre and its condition at each such visit. Every child upon its first visit to the centre is seen by the doctor. At subsequent visits the head of the centre decides whether it is necessary that it should be so seen or not. This depends upon its progress and general state of health. Attendance at the centre continues until the child is two years of age.

It is opportune at this point to remark that after that age and until the child goes to school when five years old there is so far no official provision for its welfare. It was the intention under the *Education Act,* 1913, to open nursery classes for these children where they would receive medical examination and supervision, but lack of funds has kept that section in abeyance. In a few places the need has been met to some extent by voluntary effort.

To return to welfare centres. The mothers are always instructed in the advantages of breast feeding and urged to continue it for nine months; they are given lessons in hygiene, in cookery and in sewing. The rooms at the centres are decorated with posters conveying hygienic teaching and cards and leaflets reinforcing the education given are distributed freely. No effort is spared to insure success. In cases of need, such simple remedies as a stock cough mixture, boracic lotion, zinc ointment *et cetera* can be obtained. Cod liver oil (with or without malt), malt alone, "Virol" and dried milk ("Cowangate" most frequently) are supplied at cost price. Centres differ as to details in these matters, but everywhere mothers have to bring with them a suitable receptacle for the medicine supplied. Should the baby become really ill, it has to attend either a private practitioner or a hospital. Payment is always expected, but not always obtained. In 1921, however, the parents' payments to the Liverpool Child Welfare Association amounted to £3,673 1s. 3d.

Results Obtained in Welfare Centres.

As to results there was a general concensus of opinion among those doing the work that an appreci-

able change for the better has occurred since its formation in every community with a centre.

One medical woman whom I questioned in Liverpool, said: "Eight years ago when a baby was brought to the centre, often in a dying condition and the mother was asked how she was feeding it, the answer would be: 'Oh just on anything we have ourselves.' Now when a child is brought and I may tell you that we seldom see such seriously ill children as was the case years ago, they are brought to the centre much earlier, when the same question is asked: 'How are you feeding it?' The answer is: 'I have only given it a little boiled water since the bowels were loose.' This proves that many of the mothers of Liverpool have at least learned that boiled water and starvation are the first step in the treatment of infantile diarrhœa."

To me it seems certain that if they have learned so much, they have learned many other things besides.

Details of Results in Aberdeen.

The following statement of facts drawn up by by Dr. Mathew Hay, Principal Medical Officer for Aberdeen, shows in concrete fashion the improvement which has taken place in that city during triennial periods from 1901 to 1921.

1901 to 1903.

During the three year period 1901 to 1903 the average number of annual births was 4,861 and the deaths of children under one year numbered 141‰.

1904 to 1906.

During the three year period 1904 to 1906 the average number of annual births was 4,830 and the deaths of children under one year numbered 139‰. During this period one health visitor was appointed by the Town Council.

1907 to 1909.

During the three year period 1907 to 1909 the average number of annual births was 4,831 and the deaths of children under one year numbered 134‰. During this period two health visitors were appointed by the Town Council.

1910 to 1912.

During the three year period 1910 to 1912 the average number of annual births was 4,158 and the deaths of children under one year numbered 126‰. During this period three health visitors were appointed by the Town Council. The first centre was opened by the Mother and Child Welfare Association in 1909. This centre is now a double centre with two areas attached. A second centre was opened by the same body in 1911.

1913 to 1915.

During the three year period 1913 to 1915 the average number of annual births was 3,881 and the deaths of children under one year numbered 149‰. During this period a third centre was opened in 1912 by the Mother and Child Welfare Association. The same body also opened a fourth centre in 1912, a fifth centre in 1913 and a day nursery in 1913.

1916 to 1918.

During the three year period 1916 to 1918 the average number of annual births was 3,049 and the deaths of children under one year numbered 132‰. During this period four health visitors were appointed by the Town Council in 1916 and seven in 1917. The Town Council also opened a ward of twenty beds for ailing babies in the City Hospital in 1917.

1919 to 1921.

During the three year period 1919 to 1921 the average number of annual births was 4,194 and the deaths of children under one year number 116‰.

During this period nine health visitors were appointed by the Town Council in 1919 and ten in 1921.

In October, 1918, the scheme of the Mother and Child Welfare Association was approved by the Scottish Board of Health. All voluntarily supported centres and day nurseries were taken over by the Town Council in November, 1918. The first (Loch Street) home for ten mothers and ten babies was opened by the Town Council in 1919. A second (Burnside House) home for twelve mothers and thirty babies was opened by the Town Council in 1919. A whole time medical officer was appointed by the Town Council in July, 1919. Special courses of lectures to newly married women were started in 1919. An ante-natal annex to the maternity hospital was opened in 1919.

The Present Time.

At the present time there are one pre-natal and five infant consultation clinics. The pre-natal clinic was opened in 1919 and the infant consultation clinics were opened between the years 1909 and 1913. Two diets per week are provided at the pre-natal clinic and eleven at the infant consultation clinics. The average number of weekly attendances is fifteen to twenty at the pre-natal and six hundred at the infant consultation clinics. The average number of new patients each week is eight to ten at the pre-natal and thirty-five at the infant consultation clinics. The total weekly attendances are fifteen to twenty at the pre-natal and seven hundred and fifty to eight hundred at the infant consultation clinics.

To quote Dr. Parker Stewart, of Perth, Scotland: "Inexperience and ignorance are being steadily and increasingly combated and defeated."

National Results.

A most telling set of figures and comments thereon were given last year in the issue of *National Health* for July. The fall in the infant mortality rate is indicative. I quote in full:

Year.	Equivalent to Full Time Health Visitors	Infant Welfare Centres.	Infant Deaths per 1,000 Births.
1914	600	250	105
1918	1,250	1,150	97
1920	1,550	1,780	85
1921	1,737	1,954	83

The cost in money has been:

Year.	Expenditure. £
1914-15	83,000
1915-16	136,000
1916-17	245,000
1917-18	438,000
1918-19	730,000
1919-20	1,345,000
1920-21	1,864,000
1921-22	1,900,000 (approximately).

But against that we must put the opinion of Sir Josiah Stamp, the well-known authority on such questions, who estimates the value of each individual of the population in terms of pounds, shillings and pence to the nation to be in pre-war days £313 and nowadays to be somewhere in the neighbourhood of £500.

Again, Dr. Edgar Collis, Professor of Preventive Medicine at the Welsh National School of Medicine, gave a significant estimate in our issue of June, 1921, when he estimated, taking all factors into consideration, that a health visitor, at a salary of £250 a year is responsible for the ultimate return of something like £10,000 per year, this being the wage-earning power of the individuals whose lives, as babies, her services helped to save.

The incidence of the disease, diarrhœa, which is particularly fatal to children under two years of age, throws great light upon the value of maternity and child welfare and of public health activities. The year 1911 and the year 1921 are especially interesting for comparison, both being characterized by hot, dry summers and were, therefore, likely to be visited by a severe epidemic of diarrhœa.

In 1911 out of every 1,000 infants born 130 died under one year of age.

In 1921 out of every 1,000 infants born 83 died under one year of age.

In actual numbers in 1911 881,138 babies were born and 31,900 died under twelve months of age from diarrhœa, while in 1921 which had a longer and hotter summer and in which the births numbered 849,045, only 11,705 babies died from this disease, that is to say, that for every 1,000 babies born 36 died from diarrhœa in 1911 and only 14 in 1921. These observations merit careful appreciation from those who would estimate the value of public health expenditure.

It has often been pointed out, but is not yet sufficiently recognized, that whatever the infant mortality of a given community, it does not by a long way represent the cost to it of want of proper care of its children in their earliest years. Many children who do not die, are severely handicapped all their life by ante-natal or post-natal neglect or disease. In addition to the suffering they endure, there is the economic loss inflicted upon the community by their poor health and inefficiency. This must be a very considerable burden indeed.

We have been extraordinarily slow in recognizing these facts in an organized way, but there is no doubt Great Britain is at last alive to them and is putting its house in order. It would be wise for Australia to begin now while the problem is comparatively easy to deal with.

Several centres have been opened in the eastern States and we hope to have two in Perth this year. One is already open. The ideal would be to have one for every 30,000 or so of the population and to place them in towns and villages where they could easily be reached. From them welfare visitors could go occasionally to homes situated too far from the centre for the mothers to attend.

CONCLUSION.

This paper would be incomplete were I not to refer to the unfailing courtesy and kindness extended to me as an officer of the Public Health Department of Western Australia. In every place where I called upon the principal medical officer, I was received most cordially and asked what I desired to see. One of the medical officers of the Department always accompanied me to some branch of the work, several times the principal medical officer himself did so.

It was an expression of the good will felt towards any visitor from the Dominions and particularly towards Australians, by all classes of the community in Great Britain. I am glad to have this opportunity of acknowledging it.

RECENT INVESTIGATIONS INTO GROWTH OF BONES IN INFANCY.[1]

BY E. J. DALYELL, O.B.E., M.B. (Sydney),
Sydney.

SINCE Glisson compiled his report on rickets in 1659, much has been written concerning the problems of bone development, but until recent years investigations into abnormal processes of bone formation had given few definite results. In the past seven years our knowledge of the subject has expanded considerably and warrants the belief that the question of the ætiology of rickets can be solved.

This rapid advance is due to the better comprehension of nutritional disorders that has followed the recognition of certain accessory factors in diet and their part in nutrition, to the improved technique of experimental work with animals in dietetic investigation and to the elaboration of radiographic methods for study of bone diseases.

Mellanby's work on rickets in dogs[(1)(2)] first showed that certain diets were associated with abnormalities in bone formation analogous to human rickets; and different investigators have since described standard diets which consistently produce rhachitic changes in the bones of rats, but permit normal bone formation when the known defects are made good. These dietetic deficiencies may be (*a*) of inorganic constituents, through altering the amounts and relative proportion of calcium and phosphorus in food or (*b*) of an unknown organic factor associated with certain animal fats. Special interest attaches to this factor which is closely allied to "fat-soluble A," the vitamin necessary for normal growth and for the prevention of xerophthalmia, but is not identical with it. This important conclusion has followed from the fact that in such fats as cod liver oil, rich both in fat-soluble A and in the calcium-depositing factor, it has been possible to destroy the fat-soluble vitamin (by oxidation) but to retain the calcium-depositing constituent unchanged, and to prevent or cure rickets with such oxidized oils which are unable to promote growth or to prevent xerophthalmia.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on June 29, 1923.

The specificity of the organic factor in maintaining or restoring normal calcium metabolism has been demonstrated by many workers, but it has not been isolated nor is its mode of action understood. Cod liver oil and the liver oil of certain other deep sea fish are known to be rich sources of this substance, but it would seem to occur in milk fat in relatively small amount and to be absent in most of the vegetable oils tested for this property by McCollum and his co-workers.[1]

Animal experiments have also been utilized in the past three years to demonstrate the dramatic discovery of the specificity of certain light rays in influencing calcium metabolism. Since Huldschinsky[4] in 1920 published his striking results on the treatment of rickets by exposure of the body to ultra-violet light, many observers, Hess and others,[5][6][7][8][9] McCollum and co-workers,[2][11][12] Hume,[13] Goldblatt[14] have shown that the metabolism of calcium and phosphorus in the animal body can be influenced to a remarkable degree by exposure to light, owing to the specific action exerted by ultra-violet rays of wave length of about 300 microns. It was established that (*a*) exposure to sunlight or to light from special lamps producing ultra-violet rays prevented the development of rickets in rats receiving a standard rickets-producing diet (low in phosphorus and in the calcium-depositing factor); (*b*) the organic factor in diet and the ultra-violet rays in light have identical action in influencing the metabolism of calcium and phosphorus in the animal body and (*c*) these two dissimilar agents can within limits replace one another. This conception of the specific action of particular light rays in animal metabolism is likely to have a profound effect on our views of nutritional disorders in general.

No accurate clinical data existed to show how far the earlier findings on rickets in laboratory animals were applicable to the human subject, and the need for further clinical observation under strictly controlled conditions was fully realized. From 1919 onwards such work was carried out in Vienna, where a special opportunity offered owing to the increased incidence and severe grade of this disease prevalent after the war. Moreover, the University Kinderklinik under the direction of Professor Clemens Pirquet provided exceptional advantages for research in nutritional problems, as the study of nutrition had been elaborated there with unusual completeness during the last ten years. A system of infant feeding has been devised by Pirquet by which the energy requirement is calculated in relation to the sitting height of the individual, in accordance with a definite relationship shown by Pirquet to exist between this measurement and the normal calorie intake of normally growing mammals. For infants the calorie allowance thus calculated is higher than that allotted in other systems of infant feeding, and a very high proportion of the total calories is given in the form of carbo-hydrate and the proportion of milk and milk fat is reduced accordingly. The diets in ordinary use in the Kinderklinik were thus in contrast to the dietary considered necessary, on the basis of the newer experimental work, for the prevention of rickets in infancy and it was possible to arrange a scheme for observing two groups of infants over long periods on two different diets, one of which should be that ordinarily given at the Kinderklinik, the other contrasting with it as far as possible especially in regard to the factors associated with fats.

The general opinion held in Vienna was that rickets was not a dietetic disease, but was probably due to some unknown infection with a distribution of the infecting agent comparable to that of tuberculosis. Professor Pirquet took a keen interest in the problem of rickets as a nutritional disease (while not accepting this theory of its origin) and to help in its elucidation offered all the facilities of his Klinik. Sixty cots and a large trained personnel were made available under Pirquet's direction for this investigation and the special kitchens and radiographic equipment of the Kinderklinik were fully utilized. The wards were spacious, well-lighted and thoroughly ventilated and warmed, and conditions of constant dietetic control were possible. From November, 1920, until August, 1922, infants were under investigation in hospital for long periods and thus an opportunity was afforded for observing the general progress and the growth and development of bones during the first year of life, as shown by frequent radiographic and clinical examinations.

Much of the confusion of opinion relative to rickets has arisen through lack of a consistent standard for diagnosis of the condition. Rickets is a condition of defective metabolism of calcium and phosphorus in the animal body, which affects osseous tissues chiefly but not exclusively, and leads ultimately to gross abnormalities in bone formation. Such late manifestations as retarded development, deformities of the long bones, thorax or head, are characteristic and show an advanced stage of the disease; the early appearances are indefinite and difficult to diagnose with certainty. Diagnosis of a rhachitic condition can be made by clinical, radiographic, chemical or histological methods. Of these the obvious advantages of radiographic diagnosis are that it provides a consistent, accurate and permanent record of alterations in the bony structures, that it is more uniform and less subjective than any other method and that it permits diagnosis to be made at an early stage. Its drawback is that it is not applicable for examination of the head and thorax, in which the first signs of rhachitic change can generally be found by careful clinical examination. In this investigation, however, radiographic evidence of rhachitic change at the epiphyses has been taken throughout as the criterion of rickets and onset, progress and rate of recovery have been determined by this standard.

The infants admitted for this observation were classified on admission as (*a*) non-rhachitic and (*b*) rhachitic as judged by X-ray examination of the long bones. The non-rhachitic infants were usually in the first or second month of life when admitted and in this group the efficacy of prophylactic measures was tested; the infants admitted with rickets were older (from eight to fifteen months of

age) and showed the effect of various therapeutic measures.

Diets.

The infants admitted received either Diet I. which was the ordinary diet used at the Kinderklinik and contained a moderate amount of whole milk and large additions of carbo-hydrate, or Diet II. which consisted of a larger allowance of whole milk with little or no added sugar and an addition of cod liver oil up to eight grammes daily for each child. The milk in Diet I. was fresh cow's milk obtained from stall-fed cows and for Diet II. was a re-constituted dried milk of constant composition. The fodder of the cows providing the fresh milk was under control for a long period and continuous animal experiments were carried out to test the growth-promoting properties of the milk used. The two diets differed in the amount and relative proportion of protein, fat and carbo-hydrate in each; and the accessory calcium-depositing factor was provided in Diet I. by milk only (a relatively poor source), while in Diet II. this element was supplied not only by milk, but also by cod liver oil which is the richest known source of this constituent in food-stuffs. The allowance of milk per kilogram of body weight averaged 125 cubic centimetres in Diet I. and 150 cubic centimetres in Diet II. The relative composition of the two diets can be tabulated as follows.

Diet.	Calories as Protein.	Calories as Fat.	Calories as Carbo-hydrate.
I.	13%	28%	59%
II.	20%	45%	35%

The minimum time that a child remained under observation was five months and the majority were observed for at least nine months. The general health of the infants was fairly good and the course of the work was not interrupted by any epidemic of infectious disease. The occurrence of rickets was noted in certain groups of babies while they remained in hospital and such babies permitted accurate observations on therapy to be made, as it was possible to test the effect of diet without altering environment or to make a change in the child's mode of life while keeping its diet constant for months.

Summary of Results.

Prophylactic Observations.

The data obtained by prolonged observation of young babies showed that the process of bone formation and growth was affected by three factors:

(i.) Season, (ii.) diet, (iii.) age.

(i.) The only cases in which rhachitic abnormalities of bones could be demonstrated radiographically, occurred during the winter seasons. In the summer all children on both types of diet in the Kinderklinik showed normal bone formation in skiagrams of the epiphyses.

(ii.) The cases of rickets that occurred, developed only in infants receiving Diet I. during the winter. No child receiving a dietary containing cod liver oil showed abnormality of bone formation in any of the repeated X-ray examinations made.

(iii.) The age incidence indicated that the first half-year of life is a period of special susceptibility to disturbance of the normal calcium metabolism. The majority of infants in whom the diagnosis of rickets was made, were under seven months old when the condition was shown radiographically at the epiphyses, and in many instances clinical signs of rickets were detected in the head and chest at an even earlier age. In Vienna it was found that rickets affected the majority of infants born at the end of summer and during the autumn, who passed the first six months of life under winter conditions. The incidence of rickets during winter was less among those infants in hospital who had been born in spring and early summer and so passed their first half-year in the summer period. It is possible that the greater susceptibility accompanies the period of relatively most active growth, but the question is a complex one and the resistance of older children may be associated with the development of some internal agent which helps to regulate the metabolism of the inorganic constituents of the body.

Discussion of Results of Prophylactic Observations.

The seasonal incidence of rickets has long been recognized and as early as 1890 was attributed by Palm to variations in sunlight, but the remarkable specificity of light as a protective agent against rickets had not been comprehended. In the Vienna observations the diets were constant in the summer and winter seasons and therefore the winter incidence was clearly attributable to some other circumstance. The difference was one of environment, as the infants spent many hours daily in the sunshine in the summer months, but could not be exposed out of doors in the bitter Austrian winter and remained indoors in well-lighted, airy, warm wards with double windows closed. It was assumed that in this way satisfactory hygienic conditions were provided, but it was realized subsequently that by this means the ultra-violet rays of light were excluded, as ordinary plate-glass inhibits their passage. Infants kept indoors with windows closed were deprived of these rays which are essential for proper metabolism of calcium and phosphorus within the animal body when an ordinary diet is given, and rickets developed as a consequence. The diet that was adequate for normal bone formation and growth in summer failed to prevent rickets when ultra-violet rays were excluded, but it is remarkable that a dietetic agent, *id est* cod liver oil, when regularly administered, produced the same effect as exposure to the necessary rays of light and allowed bone formation to proceed normally.

The mode of interaction between light and a special dietetic substance is unknown, but it is certain that no photo-synthesis of the organic factor occurs (Hume[9]). The hypothesis suggests itself that in the cod or other deep-water fish the metabolism of inorganic elements has to take place independently of sunshine and the potent organic

centres of ossification, the spontaneous fracture of the fibula.

FIGURE III.—Skiagram taken on May 2, 1922. The same child as in Figure II. after administration of ten cubic centimetres of cod liver oil daily for nine weeks. Note the density of the shaft much increased, the cortex thickened, calcification begun at the ends of the shafts now defined, the centres of ossification more distinct, the ends of the shafts now flared, the normal contour of the

DR. BELL'S CASE (See page 172).

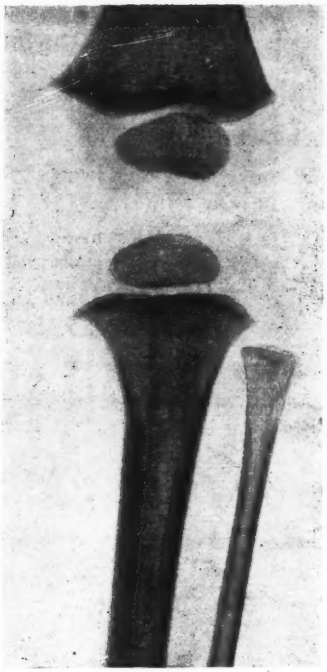


FIGURE I.

Normal Bones; child, aged one year. Note the dense uniform calcification of the shafts and the sharply-defined regular line of calcium along the epiphyseal margin. The centres of ossification are well-developed and uniformly calcified.

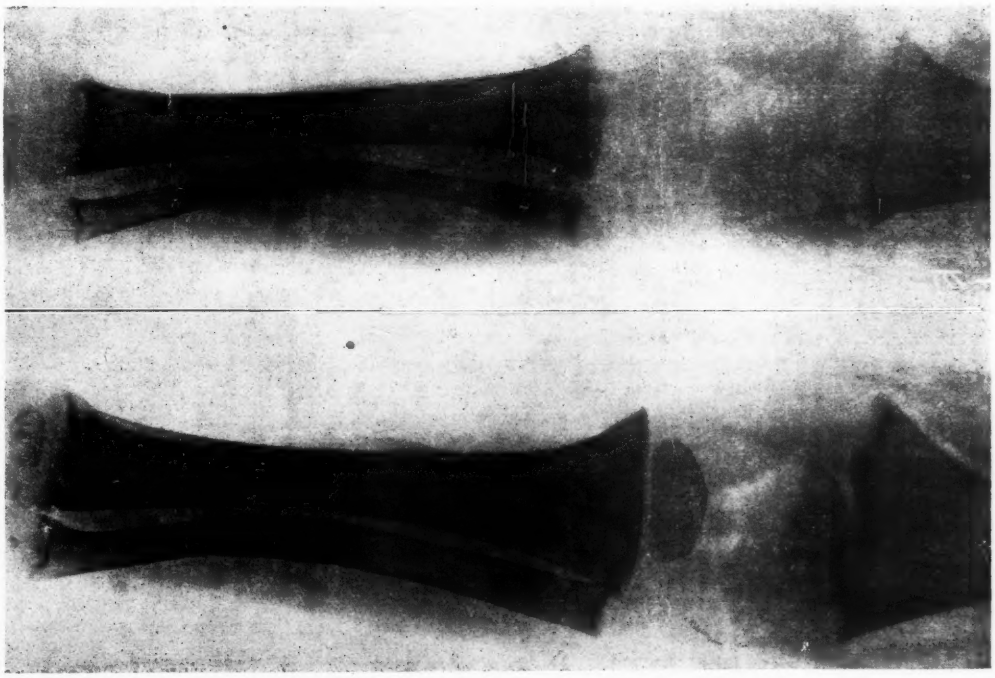


FIGURE II.

FIGURES II. and III. Show the Therapeutic Effect of Cod Liver Oil in Rickets.

FIGURE II.—Skiagram taken on March 10, 1922. Bones of a child, aged ten months, with severe rickets. Note the rarefaction of the shafts, the failure of sub-periosteal deposition of calcium, the complete loss of outline at the epiphyseal borders which are faint and irregular, the poorly defined centres of ossification, the spontaneous fracture of the fibula.

FIGURE III.—Skiagram taken on May 2, 1922. The same child as in Figure II. after administration of ten cubic centimetres of cod liver oil daily for nineteen days. The shaft much increased, the rapid restoration of calcification at the epiphyseal lines, the periosteum, the normal contour of the ends of the shafts now defined, the

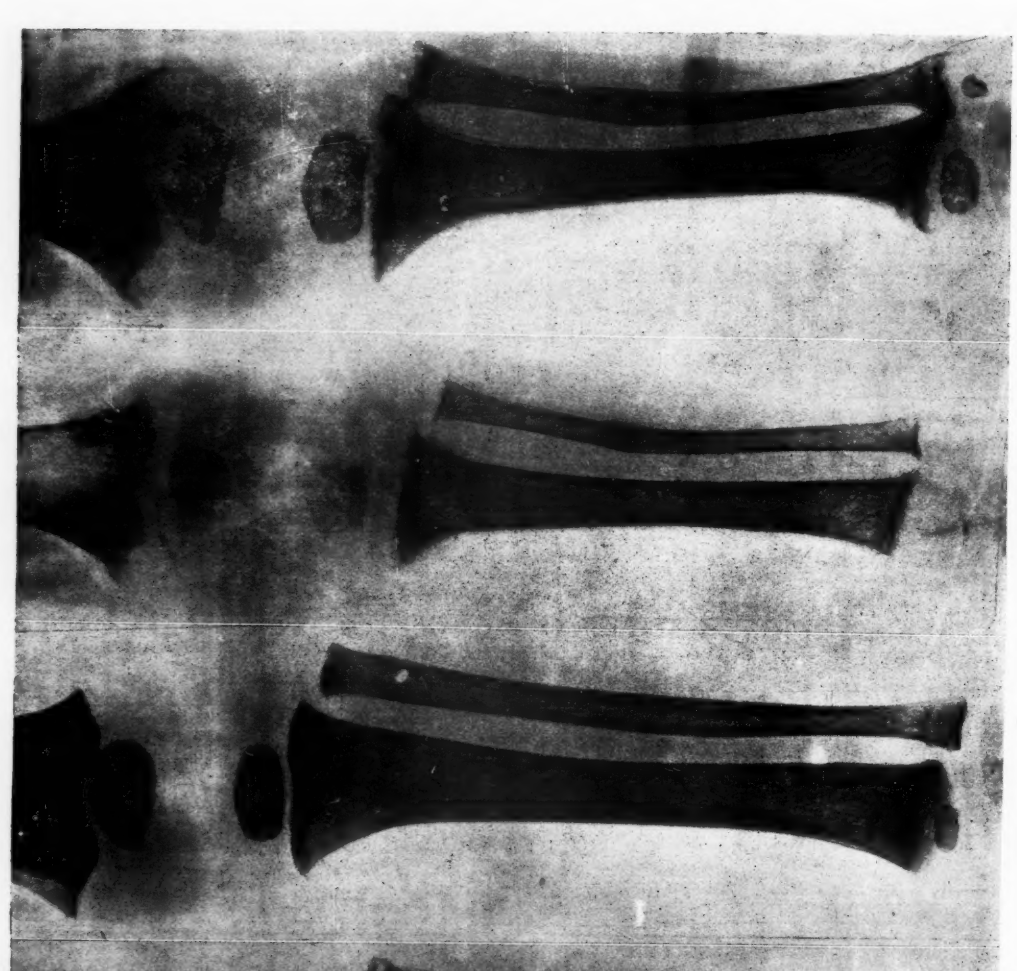


FIGURE V.

FIGURE VI.

FIGURE IV.

FIGURES IV., V. and VI. Show Stages of Healing in Severe Rickets Treated by Ultra-Violet Radiation from a Mercury Vapour Quartz Lamp. (Figure IV. has been placed after Figure V. in the block.)

FIGURE IV.—Skiagram taken on April 19, 1922. Early stage of healing rickets in a child, aged fourteen months. It had been treated since March 7, 1922, by irradiation of the whole body with ultra-violet light on alternate days for periods of from five to thirty minutes. The total time was eleven hours. Rapid calcification of the rhachitic epiphyses is proceeding and sub-periosteal deposition of calcium can be seen along the fibula.

FIGURE V.—Skiagram taken on May 4, 1922. The same child, two weeks later. Note the normal condition of the bones restored, the new areas of bone formation are well defined, sub-periosteal

FIGURE VII.

FIGURE VIII.

FIGURES VII. and VIII. Show Healing of Rickets by Exposure to Sunshine. A patient, aged one year, was admitted with severe rickets on April 8, 1922. The rhachitic bone lesions remained unchanged for three months after admission, until the child was exposed to direct sunlight, when the healing was rapid.

FIGURE VII.—Skiagram taken on July 22, 1922. Shows the same severe rhachitic changes in the bones on admission on April 8, and remained unaltered, despite good condition and hygiene in hospital for three months. The skins were as in Figure IV.

calcium-depositing factor is developed in the process. The amount of the organic factor present in milk is probably inadequate to afford protection against rickets when the necessary light rays are excluded, as it was frequently noted in Vienna that breast-fed children receiving large amounts of milk from their mothers showed severe stigmata of rickets at the end of the winter if the susceptible age period had fallen in the winter months.

Therapeutic Observations.

In judging the effect of treatment, X-ray examinations of the long bones at intervals of four to ten days were indispensable. The renewed calcification can be seen radiographically long before alteration in the clinical signs of rickets is apparent, and observations on therapy not controlled by X-rays would be fallacious. Radiographically healing was evident in twelve to twenty days after effective treatment was begun and appeared as a fine line of calcium deposition beyond the rhachitic epiphyses. The process was best seen at the knee joint (see Figures I. to VIII.). The calcification progressed rapidly at the ends of the bones and beneath the periosteum and the normal contour and density were restored in two to four months according to the severity of the initial lesions. Two therapeutic groups were formed by (*a*) infants who had developed rickets of mild grade while in hospital for prophylactic observation, and (*b*) infants admitted with severe degrees of rickets. The effective methods of treatment used were: (i.) Outdoor treatment in sun and shade, (ii.) exposure to ultra-violet rays produced by the mercury vapour quartz lamp, (iii.) addition of cod liver oil to the diet.

(i.) From early spring onwards children with rickets were treated by exposure outdoors on suitable days with a minimum of clothing, and healing was equally rapid whether the child was in shade or in the direct rays of the sun. Evidence of healing was shown in some instances when the child had been out of doors on twelve days for a total of eighty-eight hours. The diet during periods of recovery was unchanged from that allotted during the onset of rickets, so that the therapeutic effect of the altered mode of life was well controlled.

(ii.) Radiation with ultra-violet light was carried out for short periods on alternate days, beginning with five minutes' exposure at one hundred centimetres distance and increasing to thirty minutes at seventy centimetres distance. The effect was the same whether one limb, half the body or the whole body was exposed. Slight pigmentation of the skin was sometimes noted, but no burning took place. Healing could be demonstrated in skiagrams after about two hours' total radiation occupying fifteen to twenty days, and recovery went on at an even rate. No alteration in diet was made during treatment nor was the child allowed out of doors, so that the effects could be attributed to one therapeutic agent only.

(iii.) Cod liver oil additions to diet were made with a 50% emulsion of unrefined oil which was mixed with the food. Dosage began with two grammes and was increased to ten grammes daily and healing could be seen radiographically about sixteen days after treatment had begun. As these infants remained indoors and received diets which had failed to prevent rickets in the absence of cod liver oil, the specific effect of this dietetic addition was fully established. In Vienna only cod liver oil was used, but in America the oil of other deep sea fish has proved equally effective. The general health of all rhachitic children improved as the defect in metabolism was made good and the most satisfactory rate of recovery was noted in those children treated out of doors with exposure to sunlight. In the summer months some infants were placed out of doors at night, but remained in the wards during the day; such children showed no tendency towards recovery from their rhachitic condition, but responded promptly when placed outside in the day time.

Of great interest were some special observations on the effect of improved hygiene apart from known curative measures. Twelve rhachitic babies were transferred to the Kinderklinik from an institution in which their lives had been passed in most unsatisfactory surroundings, and by this change conditions as regards cleanliness, ventilation, exercise and food allowance were greatly improved. Specific treatment by direct exposure or diet was withheld and no spontaneous recovery from rickets was observed as a result of the better surroundings, even when the children were gaining in weight and improving in general health. When specific treatment was applied healing took place promptly in these cases.

The results of prophylactic and therapeutic work are in close accord with the facts ascertained by animal experiment. Both show that normal growth and development of bone can occur only when the requisite conditions exist for metabolism of certain of the inorganic constituents of the body; and they demonstrate the important part taken in such metabolism by certain light rays and the interdependence of these with dietetic factors in influencing cell activities. This gives promise of the establishment of a new principle in physiology likely to have far-reaching effects.

References.

(1) E. Mellanby: "A Further Demonstration of the Part Played by Accessory Food Factors in the Ætiology of Rickets," *Proceedings of the Physiological Society*, 1918-1919, Volume liii., page 52.

(2) E. Mellanby: "An Experimental Investigation on Rickets," *The Lancet*, March 15, 1919, page 407.

(3) G. F. Powers, E. A. Park, P. G. Shipley, E. V. McCollum and N. Simmonds: "The Prevention of the Development of Rickets in Rats by Sunlight; Studies in Experimental Rickets," *The Journal of the American Medical Association*, January 21, 1922.

(4) K. Huldschinsky: "*Die Behandlung der Rachitis durch Untraviolettbestrahlung, Dargestellt an Vier-und-Zwanzig Fällen*," *Zeitschrift für orthopädische Chirurgie*, Band XXXIX., 1919-1920, *Seite* 426.

(5) A. F. Hess: "Newer Aspects of the Rickets Problem," *The Journal of American Medical Association*, April 27, 1922, page 1177.

(6) A. F. Hess: "The Influence of Light in Prevention and Cure of Rickets," *The Lancet*, August 19, 1922, page 367.

(7) A. F. Hess, L. J. Unger and A. M. Pappenheimer: *Proceedings of the Society of Experimental Biology and Medicine*, 1922, Volume xix., page 238.

(8) A. F. Hess, L. J. Unger and A. M. Pappenheimer: "The Prevention of Rickets by Sunlight, by the Rays of the Mercury Vapour Lamp and by the Carbon Arc Lamp," *Journal of Experimental Medicine*, 1922, Volume xxxvi., page 427.

(9) A. F. Hess, L. J. Unger and A. M. Pappenheimer: *Journal of Biological Chemistry*, 1922, Volume l., page 77.
(10) A. F. Hess and M. Wienstock: "A Study of Light Waves in their Relation to Rickets," *The Journal of the American Medical Association*, March 10, 1923.
(11) G. F. Powers, E. A. Park, P. G. Shipley, E. V. McCollum and N. Simmonds: "The Prevention of Rickets in the Rat by Means of Radiation with the Mercury Quartz Vapour Lamp," *Bulletin of the Johns Hopkins Hospital*, April, 1922, page 125.
(12) E. V. McCollum, N. Simmonds, Becker and P. G. Shipley: *Journal of Biological Chemistry*, 1922, Volume liii., page 293.
(13) E. M. Hume: "The Effect of Radiation with the Mercury Vapour Quartz Lamp on the Growth of Rats Fed on a Diet Deficient in Vitamin A." Special Report No. 77, Medical Research Council, 1923, page 171, and *The Lancet*, December 23, 1922.
(14) H. Goldblatt and Soames, *The Lancet*, December 23, 1922, page 1321.

Reports of Cases.

FRACTURE DISLOCATION OF CERVICAL VERTEBRÆ.

BY GEORGE BELL, O.B.E., M.B., Ch.M. (Sydney),
Honorary Surgeon, Sydney Hospital.

THE following record is of interest because fracture dislocation of cervical vertebræ is frequently fatal. Stimson argues that the prognosis is very unfavourable. Gurlt's tables contain records of ninety-six fatal cases and in only eight instances did the patient recover. In one of these the symptoms reappeared after a fall. Diagnosis may be difficult, particularly when no functional signs are present and there are but slight signs of local injury. In these circumstances the injury may be missed until a traumatic myelitis or displacement of the vertebræ occurs from some slight movement of the head or neck.

R.J., male, aged twenty-one years, was admitted to Sydney Hospital on February 11, 1923. On this day he dived from a spring board and struck his head against a rock. He did not lose consciousness.

On admission it was noted that there was loss of power in the upper extremities and partial loss of power in the lower extremities. The pulse-rate was seventy-eight. Later in the day he complained of severe pain in the neck when he attempted to move his head. There was paresis of the left arm and slight loss of power in the right. The knee jerks were present. Babinski's sign was absent.

On February 12, 1923, the patient had some difficulty in micturition, but later passed his urine into the bed. The disturbance of sphincteric action was only temporary and full control was regained by February 17, 1923.

Dr. Edwards examined the patient with X-rays on February 12, 1923, and reported "Fracture dislocation between fourth and fifth cervical vertebræ, forward dislocation of fourth cervical vertebra and vertebræ above."

Firm traction was applied to the head in a vertical direction and a plaster of Paris support was applied which included the head, neck and upper part of the thorax. This support relieved the pain and patient was much more comfortable.

On March 3, 1923, there was only slight loss of power in left arm.

On April 4, 1923, he was allowed to sit up on a wheeled chair and on April 19 he became dissatisfied with his surroundings and walked out of hospital. The plaster support was renewed at times and was worn by the patient till May 18, 1923. On this date it was removed and a light plaster collar substituted. This was removed on June 8, 1923. He has now full use of his upper limbs.

An examination with X-rays on June 14, 1923, revealed a dislocation as indicated in the skiagram (see page 169) and showed that the condition previously described was unchanged. Movements of the neck are now almost normal except for slight limitation of flexion. The patient complains of a sensation of "pins and needles" in his left hand, but no alteration of sensation can be detected by ordinary tests. The left knee jerk is slightly exaggerated.

The plaster support illustrated herewith is the apparatus which I have found most effective for the relief of pain and maintaining fixation in injuries of the cervical spine. Moreover, when wearing it the patient may be in a semi-recumbent or sitting position on a Fowler bed-frame and so diminish the tendency to pulmonary complications which are not infrequent in fractures of the cervical and upper thoracic vertebræ. It is wise to wear the support for at least three months.

AN UNUSUAL OBSTETRIC CASE.

BY H. O. LETHBRIDGE, M.B.E., M.B., Ch.M. (Sydney),
Narrandera, New South Wales.

ABOUT nine years ago I was called out forty miles to the Warangesda Aboriginal Mission Station, of which I was the medical officer. I found a black "gin" in labour and gravely ill. She had been some twenty-four hours in labour and protruding from the vagina was the repulsive face of an anencephalic monster, the sort that one sees in text books and hopes never to meet face to face. With some slight difficulty I delivered the fœtus. On endeavouring to express the placenta I felt the uterus very small and hard. I concluded the placenta must be in the vagina, but on inserting my hand and following up the cord I found the placenta in the abdomen and in the right iliac fossa. I carefully felt the uterus and made quite certain that it had no tear. The cervix was still present and undilated. She must have had a full time extra-uterine gestation. The obstetric nurse, another black "gin," informed me that while the patient squatted on the bed, she had pressed her abdomen (the patient's) by sitting on it. She also cut the membranes (actually the protruding vagina) with a glass bottle. She said: "Alway do that fella make him come quick." The patient died.

Reviews.

POISONOUS PLANTS.

IN his book, "Poisonous Plants of All Countries," A. Bernhard-Smith gives us the botanical name, the popular name or names, a condensed botanical description and the toxic principles of each plant mentioned.[1] He also appends a short poetical or prose quotation referring to the plant, though in some cases the connexion of the plant with the quotation is rather far-fetched. The classification adopted is not botanical, but pharmacological, according as the active principles are those that act on the brain as narcotics, deliriants and inebriants, those acting on the spinal cord as convulsives, those acting on the heart as depressants and asthænics; also irritant poisons as purgatives, irritants with nerve-symptoms and simple irritants; then

[1] "Poisonous Plants of All Countries," by A. Bernhard-Smith, Second Edition; 1923. London: Baillière, Tindall and Cox; Crown 8vo., pp. xii. + 112, with 185 figures in the text. Price: 6s. net.

specific irritants as micro-fungi and bacteria. In the introduction to the book, attention is drawn to the fact that sea-water or the iodine contained in it appears to be incompatible to vegetable toxins and it is significant that iodine will destroy most micro-fungi and those of the bacteria which cause infectious disease if it is in strong enough solution. He gives a few of the remedies to be used in the treatment of poisoning by the larger plants. Here the author has one very grave error, the hypodermic dose of atropine being given as a half a grain, which is likely to prove a fatal one if given. The publishers certainly should insert a correction slip against this in any book sent out. Many of the plants are illustrated, but as these are reduced to one-fifth, they would not be of much help in identification. In the appendix a fairly complete further list is given of plants reputed to be poisonous, together with their toxic principles. In the list of plants said to be known to produce *dermatitis venenata* eucalyptus is included. As far as we are aware, no reference to a case has appeared in the medical literature of Australia, the home of this genus of plants.

GYNÆCOLOGICAL TREATMENT.

THE numerous admirers of that excellent little book, "Gynæcological Diagnosis and Pathology," by Barbour and Watson will welcome the companion volume entitled "Gynæcological Treatment," written by A. H. F. Barbour. As the author states in his preface, the latter book is intended to be supplemental to the former. And it is indeed a worthy companion. For in the small compass of one hundred and seven pages, the author gives a clear and concise summary of present-day treatment in gynæcology.[1]

The book is divided into three main subdivisions. In the first part the author has given a brief but excellent summary of the main gynæcological symptoms and has outlined the technique of those special forms of treatment, the douche, the tampon and the pessary. In this part the author emphasizes the medical aspect of gynæcological treatment, an aspect which the modern student is apt to overlook. In modern hospitals the gynæcological wards are almost entirely surgical and the student is likely to regard gynæcology as a surgical specialty. But as the author rightly points out: "Gynæcology has come to occupy a position between medicine and surgery and to belong equally to the brilliant operator and the sagacious practitioner." In the courses of treatment recommended, the author has struck a happy medium and has urged the trial of medical and palliative methods of treatment wherever possible.

The second portion of the book is directed to the consideration of the treatment of various pathological conditions of gynæcology. Here the author insists on the ætiological and pathological indications for treatment and gives simple and concise directions to meet clinical requirements.

The third portion of the book is a brief summary of various gynæcological operations with the indications for each.

The book is the product of an author of high standing and ripe experience and should be of great value alike to the student and the busy practitioner. The illustrations are numerous and clear.

THE CLINICAL EXAMINATION OF THE NERVOUS SYSTEM.

DR. G. H. MONRAD-KROHN, the writer of a little book entitled "The Clinical Examination of the Nervous System,"[2] is a Norwegian. He is versatile and has unusual qualifications. He is a member of the Royal College of Physicians, London, he has studied his specialty mainly among the traditions of the British school and Dr. T. Grainger Stewart stands as sponsor for him with a complimentary foreword. In addition, he lectures on neurology at the University of Christiania, evidently has enthusiasm and a ripe experience and lastly has written his own text in English over which readers will not stumble.

The major part of the book is taken up with an account, succinct, correct and comprehensive, of the numerous methods and tests which are demanded by present-day, systematic neurological examination. Rightly recognizing, also, that a neurological examination without a tentative inquiry into the patient's mental state is incomplete, he tells briefly how to proceed in this direction. And lastly, in an appendix we find the Binet-Simon tests for the discovery of mental deficiency in children and the description of ways to analyse and determine aphasic conditions, diplopia and vestibular disturbances.

We recommend it as a handy volume for the desk of student and practitioner alike.

APPLIED PHYSIOLOGY.

THE prospective reader of Professor Rost's book, attracted by the title, will very early experience disappointment.[1] Indeed it is difficult to understand why a translation has been made and why, when made, it has not been more drastically edited. The translator in his preface says: "It may well be objected that the literature quoted is German almost exclusively, with very few references in other languages," and proceeds to make the extraordinary statement that when literature outside German was collected by him, "the same view points were expressed as in the text." We have come across many books where the authors wilfully or by ignorance restricted themselves to the work of their countrymen, but never so flagrant an example as this. In departments of physiology where British research is supreme, there is little or no recognition of this work; the treatment of shock and of certain aspects of the ductless glands, for instance, displays this omission to an absurd degree. The translator occasionally supplements the original text by matter of his own, but this is limited to American work, sometimes of mediocre quality, sometimes debatable and generally with misplaced emphasis.

Again the translator naïvely admits: "Many of the references are what we may consider old." They are in all truth. Views and hypotheses that we thought to have been long ago quietly inurned, are here surprisingly resuscitated, giving the book quite an old-world flavour. We have recently seen German compilations and summaries where the scholarship we used to expect was missing owing to inaccessibility or huge cost of extra-German literature. This excuse cannot be brought forward in favour of this volume. The author has little to do with the twentieth century and the book, even with the additions of the translator, is, we say with reluctance, practically worthless.

POPULAR HYGIENE.

THE second edition of Dr. Hutt's "Hygiene for Health Visitors, School Nurses and Social Workers" will be welcomed as an admirable book to put into the hands of students of hygiene.[2]

The early chapters are devoted to physiology and its application. How extensive is the ground covered will be seen in the fact that a special section is devoted to each

[1] "Gynæcological Treatment," by A. H. F. Barbour, M.D., LL.D., F.R.C.P.; 1922. Edinburgh: W. Green & Son, Limited; Sydney: Angus & Robertson, Limited; Demy 8vo., pp. xii. + 111, with four coloured plates and sixty-nine figures in the text. Price: 9s. net.

[2] "The Clinical Examination of the Nervous System," by G. H. Monrad-Krohn, M.D. (Christiania), M.R.C.P. (Lond.), M.R.C.S. (Eng.), with a Foreword by T. Grainger Stewart, M.D., F.R.C.P.; London: 1921. H. K. Lewis and Company, Limited; Crown 8vo., pp. 135, with 12 diagrams. Price: 6s. net.

[1] "The Pathological Physiology of Surgical Diseases: A Basis for Diagnosis and Treatment of Surgical Affections," by Professor Dr. Franz Rost, University of Heidelberg; Authorized Translation by Stanley P. Reimann, M.D., with a Foreword by John B. Deaver, M.D., LL.D., Sc.D., F.A.C.S.; 1923. Philadelphia: P. Blakiston's Son & Company; Demy 8vo., pp. xiv. + 535. Price: $6.00.

[2] "Hygiene for Health Visitors, School Nurses and Social Workers," by C. W. Hutt, M.A., M.D. (Cantab.), D.P.H. (Oxford); 1921. London: Methuen & Company, Limited; Demy 8vo., pp. 382, illustrated by 82 figures. Price: 12s. 6d. net.

of the following subjects: Food, clothing, personal hygiene and habits, water, ventilation, warming and lighting of houses and schools, disposal of refuse and drainage, general arrangement and construction of dwellings and schools, fœtal and infantile mortality, supervision of midwives, care of infants and young children, common ailments of school children, prevention of communicable diseases, elements of home nursing and first aid, duties of health visitors, supervision of domestic arrangements, institutions of use to health visitors, useful sanitary legal knowledge.

In the section on food reasons for the different processes in cooking are clearly stated, the comparative value of foods given and the importance of vitamins and their absence in deficiency diseases explained.

In the section on clothing excellent advice is given to mothers how best to clothe their children, the choice of material and colour and the style of garments suitable for various ages. General hints on the care of clothing are given and the ways in which various stains may be eradicated.

In the chapter on personal hygiene the advisability of forming good hygieneic habits in early childhood is emphasized, including the Saturday night hot bath, the Sunday morning donning of clean under-garments, the brushing of the teeth before bed time, the use of the handkerchief and the avoidance of spitting.

The section on ventilation, warming and lighting includes reference to the latest teaching of Haldane and Leonard Hill: "The carbon dioxide given off by a human being is merely one result of his katabolic processes and is accompanied by the production of a certain amount of heat and for adequate ventilation, the removal of this heat is as important as the removal of the CO_2."

In the section devoted to the planning of small dwellings the labour-saving devices are interesting, but unless these are installed by a philanthropic landlord they are for the most part inaccessible to the poor.

In the article on the disposal of refuse and drainage a great deal of space is devoted to the structure involved in the water-carriage system of sewerage. A tenant has to accept the arrangements made by the municipal authorities and it seems unnecessary and unprofitable for nurses and health visitors to be worried over the structure of the various "traps."

The section on the care of infants and young children is admirable and includes the care of the pregnant woman, breast-feeding, methods of suckling, weaning, bottle-feeding, bathing, sleep, clothing and exercise of infants and young children and an account of the common ailments of infants.

In the section on communicable diseases the meaning of resistance and immunity is explained and the precautions to be adapted to prevent the spread of infective diseases are fully described. Nurses will find very useful the methods mentioned to rid bedding, clothing and hair of vermin.

This is an excellent handbook for all interested in child welfare and should be especially suited to students attending lectures in hygiene and to nurses engaged in baby clinics, district visiting and school work.

THE EXAMINATION OF THE LUNG.

DR. ACHARD AND DR. BINET, the joint authors of a French work on the functional examination of the lung, propose to introduce to the physician certain laboratory work which has not yet been exploited at the bedside.[1]

They feel that clinical investigation has exhausted the immediate possibilities of physical signs introduced by Laennec and now tends to chemical exploration. They have accordingly collected their own original studies and other French investigations and present them as a preliminary review of the subject. Some of their results are intriguing: thus a patient with intercostal neuralgia lies on the affected side because this both immobilizes the lower hemi-thorax, so easing pain and increases the diaphragmatic excursion, so aiding the expulsive cough. When a new born infant cries the respiration is obviously abdominal in a boy and thoracic in a girl. Dr. Gallois has shown that the pulmonary capacity is readily estimated by the number up to which a person can count with a single breath, 110 or 120 in healthy youth, only three or four in a cardiac dyspnœa. They define basal metabolism as the total production of heat per hour per square metre of body surface and describe a new method for calculating it. This is based on the rate of respiratory exchange, measured by the utilization of fats in the lung, and though indirect, is said to be accurate and to dispense with costly apparatus. They provide a curious graph resembling a slide rule to simplify its calculation and they make various applications to cases of hepatic disease, goitre, diabetes, cancer, fevers and other diseases. They mention the study of airmen by Dr. Martin Flack and very shortly the extraordinary investigations of Haldane, but the book is not systematic, merely, as they say, a sketch if the field of respiratory chemical physiology. It is very suggestive. We hope it will stimulate further research.

The printing, diagrams and illustrations are excellent. There is no index.

[1] "Examen Fonctionnel du Poumon," par le Professeur Ch. Achard et le Docteur Léon Binet; 1922. Paris: Masson et Cie; Royal 8vo., pp. 156, with 66 figures and plates. Price: Frs. 12 net.

DEEP X-RAY THERAPY.

AN excellent résumé of the principles and practice of "deep X-ray therapy" appears in "La Radiothérapie Profonde" (Iser Solomon) written with the typical lucidity of French scientific writers.[1]

On the mechanical side of the work it is surprising to find no reference to a reliable stabilizer—an apparatus which would have helped the author considerably in obtaining uniformity of output and without which constant close attention is necessary to insure correct dosage.

The idea of a half absorption layer, introduced by Christen, is favoured by the author for determination of the quality of the radiation—the particular method of use being that of measuring the percentage of the depth dose at ten centimetres. For this estimation of intensity, the different forms of iontometer are recommended especially those in which the ionization chamber is connected to the electroscope by a flexible cable (those of Friedrich and of Solomon). The use of the electrostatic unit "e" for the measurement of dosage has proved unsatisfactory, various authors showing that the practical difficulties are too great to allow of its general adoption. To overcome this, the author suggests a new unit R (the Röntgen) defined as "the intensity of radiation producing the same ionization as a grain of radium element two centimetres from the ionization chamber in line with its axis and filtered through 0.5 millimetre of platinum."

The introduction of new physical units is almost without exception inadvisable, but in this connexion the need is felt for some method of comparing and correcting iontoquantimetric measurements and the use of radium as a standard could be universal, or it is probable that some unit such as "R" will be generally used. The necessity of treating patients and not diseases is emphasized as the keynote of radio-therapeutics and the German suggestions of a "cancer dose" are shown to be only an alluring fallacy. Still there is a basis of technique suggested, the variations suitable to the particular case under treatment being only minor. The author discusses benign affections such as fibro-myomata of the uterus, hæmorrhagic metropathies, erythræmia and leucocythæmia, Graves's disease and acromegaly and tuberculosis of the glands, bladder, kidneys and bone—in all of which diseases a large percentage of cures can be obtained, 40% to 100%. He favours fractional doses of 400 "R" of medium wave-length filtered through ten millimetres of aluminium repeated every week for six to eight weeks.

For malignant affections the fractional dose is again recommended, but a total dose must be administered within one week. The most favourable results are obtained in cancer of the uterus and the sarcomata, though cancer of nearly every part of the body has been successfully treated. The author concludes that the best results in the treatment of malignant disease will follow the combined use of radium, surgery and deep X-ray therapy.

[1] "La Radiothérapie Profonde," par Iser Solomon: 1923. Paris: Masson et Cie; Post 8vo., pp. vi. + 152, with 42 illustrations. Price: Frs. 9 net.

The Medical Journal of Australia

SATURDAY, AUGUST 18, 1923.

The Medical Practitioner and the Masseur.

FEW medical practitioners give a thought to the relations existing between their own profession and those sister professions which stand in close contact with it. Even less often do medical practitioners consider the relative positions of their technical assistants or of others whose direct or indirect help is needed in the course of practice, and themselves. There is, however, cogent reason for a careful consideration of these relationships. In regard to the profession of dentistry there is now a well-established code. No registered medical practitioner may collaborate with an unregistered dentist. The General Medical Council has dealt with this matter and has determined that the administration of an anæsthetic for an unregistered dentist by a registered medical practitioner constitutes "covering" and is detrimental to the public and professional interest. Medical practitioners do not work with untrained nurses and in this country they insist, when a trained nurse is required, that the nurse shall be a member of the Australasian Trained Nurses' Association or of the Royal Victorian Trained Nurses' Association. In obstetric practice the medical profession is at the present time using its utmost influence to eliminate the untrained midwife and obstetric nurse and to introduce registration and control for both in order to give greater security to their patients. The doctor always inquires whether a midwife or obstetric nurse in attendance on his patient holds the certificates recognized in these two branches of work. While means are taken to prevent patients from entrusting their lives to the care of incompetent or untrained nurses, obstetric nurses or midwives, it does not appear to be a matter of concern to the doctor whether the masseur or masseuse engaged to carry out massage treatment is endowed with the hall mark of efficiency, the certificate of the Australasian Massage Association. We feel sure that the employment of persons not having this qualification to carry out massage is due to an oversight on the part of the medical profession. It is, however, of very common occurrence. Candidates for the certificate of the Australasian Massage Association have to attend courses of lectures given by University lecturers in Sydney, Melbourne and Adelaide on anatomy and physiology and to study in accordance with the prescribed regulations for a period of two years. The course is a serious one and the student has to give his or her whole energies to the several component subjects. The importance of adequate training for practitioners in massage is recognized by the University authorities and by special permission the massage students are permitted to attend the lectures at the Medical Schools, notwithstanding the fact that massage is not regarded as an independent art. The certificates are issued by the Australasian Massage Association after completion of the two years' course and after a searching examination. There is no other guarantee of efficient training in the principles and practice of massage in Australia. Medical practitioners should insist that when massage is prescribed, it shall be carried out by a certificated person. Lists of members of this association are issued at the head office in Sydney and by the honorary secretaries of each of the Branches in the other capital cities of the Commonwealth. These lists are available to medical practitioners. At each office of the Australasian Massage Association the secretaries are at all times ready and anxious to give information and to assist medical practitioners who may make inquiries. The organization is Federal and consequently information can be obtained in any State concerning masseurs in any other part of Australia.

While this reliable and excellent organization exists and its members are available in all the States, many medical practitioners send their ambulant patients to commercial houses where physical exercises and massage are carried out by unregistered persons under the well-sounding title of physical culture. We would remind members of the medical profession of the notorious instance of Sandow's Institute in London and of the fact that the General

Medical Council dealt severely some years ago with two medical practitioners who had covered Sandow in his treatment of patients. In the vast majority of these physical culture institutes treatment is carried out without the guidance and without the professional sanction of a doctor. The support lent by the medical profession to these institutes places them in a position of stability and prosperity. In a few instances the institutes are conducted by trained instructors who have secured a diploma of the Springwood College, in the United States of America, after a four years' course of study, or who have secured adequate training in other ways. The trained physical instructor refuses to handle a person who needs treatment for a pathological condition, injury or other deformity, save when a medical practitioner prescribes exercises, medical gymnastics or other forms of physical treatment. He realizes that he has no education in pathology. He works toward the medical practitioner, endeavouring to maintain strength, physical ability and suppleness in the healthy and attempting, under the directions of a medical practitioner, to restore them in disease. With these facilities at his disposal, surely the medical practitioner has no need to employ either the uncertificated masseur or masseuse or the untrained physical culturist. Orthodoxy should secure recognition in the eyes of an orthodox profession.

Current Comment.

HYPERPLASIA OF THE EPITHELIAL AND CONNECTIVE TISSUES OF THE BREAST.

THE classification of tumours of the breast depends on their morphological characteristics as revealed on microscopical examination. No further evidence of the unsatisfactory standardization of knowledge in this regard is required than the multiplicity of names found in the literature on the subject. Many of these names, however, are found to be indicative of the prominent changes which are present. Thus certain lesions characterized by overdevelopment of connective tissue are described by the term interstitial mastitis, some of those associated with cyst formation may be described as cystic tumours or cystic mastitis and the term adenoma may be applied to conditions in which a proliferation of the epithelial structures is found. The multiplicity of names must, to some extent, be laid at the door of both surgeon and pathologist. The former very often has not taken enough trouble to study and understand the pathological processes with which he is dealing, and the latter has not associated himself sufficiently with the clinical work of the former. Among the more prominent of those who have studied this question is Sir George Lenthal Cheatle. In 1920 and in 1921 he published valuable observations in *The British Journal of Surgery* on cysts and papillomata and on changes in the duct epithelium of the breast. He has recently published observations on hyperplasia of the connective tissue and epithelial tissues of the breast.[1] The epithelial and connective tissues cannot very well be separated in such observations for in very many instances changes in both structures are concurrent. Warren has stated that changes occur simultaneously in both structures in about 50% of instances. Sir George Lenthal Cheatle in the opening sentence of his article lays stress on this association. He also emphasizes the necessity for a correct understanding of the structure of normal ducts and acini, Immediately beneath the cells of the epithelium there is a layer of longitudinally arranged unstriated muscle fibres which lies on the basement membrane. Subjacent to this there is a layer of delicate connective tissue consisting of bipolar and stellate cells. Outside this delicate tissue layer is the *elastica*. The relationship of the *elastica* is maintained in both ducts and acini, but it cannot be demonstrated as surrounding all acini even in normal breasts. Sir George Lenthal Cheatle describes a normal breast as the average breast of twenty years of age. Outside the *elastica* there is found in the ducts a layer of unstriped muscle fibres. This gradually disappears as the acini are reached. The walls of the ducts and acini are closely invested by fibrous tissue. This forms the interlobular connective tissue as it surrounds the acini. Sir George Lenthal Cheatle regards this connective tissue as of a separate and more specialized type than that which is found diffused generally throughout the breast. He states that it may undergo degeneration independently of the general connective tissue and it may remain unaffected when the general connective tissue has undergone condensation. It also shares not infrequently the hyperplasia of the *elastica* and may be concerned in the formation of fibro-adenomatous tumours of the breast.

Sir George Lenthal Cheatle holds that the hyperplasia of the connective tissue may be divided into three classes, *hyperplasia intra-elastica, hyperplasia elastica* and *hyperplasia extra-elastica.* He describes each of these classes in some detail and illustrates them by examples taken from sections of tumours which he has studied. *Hyperplasia intra-elastica* occurs in the delicate layer of connective tissue which lies immediately internal to the *elastica* in the ducts and acini. It may occur either in a diffused or localized form. The diffused form rarely occurs in breasts in which no other lesion can be discovered. The hyperplasia consists of large scattered cells, some of which are bipolar

[1] *The British Journal of Surgery*, April, 1923.

and others stellate and loosely bound together by delicate connective tissue. It is sometimes found in breasts in which carcinoma and multi-radicular papillomata are present. It may also be seen in some forms of fibro-adenomata belonging to the *hyperplasia extra-elastica* class. Its occurrence is more common than is usually supposed and it may give rise to localized tumours. The localized form of *hyperplasia intra-elastica* is a tumour formation usually superimposed on the diffuse form. It may occur in the ducts or in the acini. The simplest form in the ducts is seen as an oval swelling inside the *elastica* bulging into the lumen of the duct. The tissue composing the swelling pushes up the epithelial cells and the muscle layer and these appear to be normal. The duct in these circumstances may contain multi-radicular papillomata. From this type of *hyperplasia intra-elastica* large intra-canalicular fibro-adenomata may develope. Sir George Lenthal Cheatle illustrates such a tumour in which hyperplasia of the epithelium was manifested. He concludes that from the surface of these growths more or less pedunculated papillomata may arise. The epithelium may, on the other hand, dip down and form depressions. In this way normal acini may be developed, acini which are connected with stunted ducts. As long as these growths are within the ducts, they are encysted tumours. The pressure caused by their expansion may destroy the duct wall. The tumour thus comes into contact with the general supporting fibrous tissue. This may lead to the appearance of what may be mistaken for a definite cyst wall. If carefully examined, however, it will be seen that the compressed fibrous and elastic tissue is continuous with definite strands which are lost in the structure of the breast and have nothing to do with the duct walls. When the localized form of *hyperplasia intra-elastica* is confined to the acini, the connective tissue may undergo such a degree of hyperplasia that a collection of acini thus involved forms itself into a distinct isolated tumour and forms a fibro-adenoma. In discussing *hyperplasia intra-elastica* in general, Sir George Lenthal Cheatle refers to the conclusion of Ribbert that it was of vast importance in the carcinoma process. He has not seen a specimen in which it could be determined that carcinoma arose in an acinus affected by *hyperplasia intra-elastica*. He has seen it in breasts in which neither malignant nor benign tumours were present and also in breasts in which these conditions were present, but he has been able to observe nothing to contra-indicate the assumption that epithelial activity is the primary change in carcinoma. In the early stage of *hyperplasia intra-elastica* inflammatory signs are absent. In the *hyperplasia elastica* type there is a combined hyperplasia of the *elastica* and the fibrous tissue with which it is intermingled. The process is generally widespread and affects the greater number of the ducts and acini in a breast. It is accompanied by desquamative hyperplasia of the epithelium. Sir George Lenthal Cheatle has seen this chiefly in breasts in which carcinoma existed, in breasts affected by Paget's disease with ducts and acini full of carcinoma and in breasts which he terms "præmial" breasts. He uses the term "præmial" to indicate the condition of a breast which makes it a prelude to later developments of papillomata and of duct and acinous carcinoma. He is of the opinion that in examining breasts affected by *hyperplasia elastica* the whole breast should be examined before it is passed as being free from malignant disease. He considers the condition one of diffuse fibro-adenoma. *Hyperplasia extra-elastica* is divided into two groups, the peri-acinous and peri-canalicular group and the intra-canalicular group. It includes many well-known forms of fibro-adenoma. The peri-acinous and peri-canalicular group may occur as a localized or as a diffuse form. In the localized form the terminal ducts and acini are as a rule involved and the epithelium undergoes a desquamative hyperplasia. The fibrous supporting tissue may be involved and the tumour may include fat within its boundaries. As a rule, however, the coarse fibrous tissue supporting the breast is pressed upon and made to appear as a capsule. There is generally a sharp distinction between the fibrous tissue immediately surrounding the ducts and acini and that which forms the coarser supporting elements of the breast. This tumour forms the peri-acinous and peri-canalicular fibro-adenoma. If this view of the so-called capsule is correct, it will be seen that the clinical differentiation of tumours of the breast as stated by MacCarty into capsulated and non-capsulated forms is not only useless but incorrect. The presence of a "capsule" is dependent on the extent of the fibrous overgrowth and the proximity or otherwise of adipose tissue, for no "capsule" is formed when the proliferating fibrous tissue is bordered by adipose tissue. The diffuse form of peri-acinous and peri-canalicular fibro-adenomata resembling those of the localized form. Sir George Lenthal Cheatle believes that the diffuse form is a primary condition and not merely the result of chronic inflammation. The intra-canalicular form of *hyperplasia extra-elastica* is commonly seen in association with the peri-acinous and peri-canalicular form. Pedunculated growths bulge into the lumina and in their centre the *elastica* is embedded.

In discussing the observations he has made, Sir George Lenthal Cheatle states that a new classification of fibro-adenomata emerges, a classification into groups corresponding to the different varieties of hyperplasia he has described. He believes that it is exceedingly rare for a carcinoma to originate in a localized fibro-adenoma. He does not attach any special clinical signs to the different types of tumours. He concludes that it is safer to take away the segment of breast in which a fibro-adenoma is growing. Although he describes three classes into which many pathological changes fall, he emphasizes the fact that changes belonging to one class may be complicated by changes which he has described as belonging to another. He thinks that all the changes which he has described, including carcinoma, may be phases in a consecutive evolution of disease. He further states that although many observers recognize that all epithelium that dips down into deeper structures is not necessarily malignant, few seem to consider seriously the idea that epithelium confined within the ducts is not necessarily benign.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

The Functions Attributed to the Pituitary Body.

J. CAMUS AND G. ROUSSY (*Journal de Physiologie et de Pathologie Générale*, 1922) have made a number of experimental observations on the pituitary body and have found that they could not verify many of the notions considered classical. They have removed the gland in a large number of dogs and cats by various methods and routes and have produced lesions in neighbouring parts of the brain without damaging the pituitary body itself. All their results have been checked by microscopical examinations *post mortem*. As every worker on this subject has found, deaths following quickly after operation have been very numerous, nevertheless a large number of animals have been kept alive for months after total extirpation of the pituitary body. The pituitary body then does not appear to be necessary to life. Polyuria often follows extirpation of the gland, but if the extirpation has been made without damaging the base of the brain, this symptom does not appear. On the other hand, if the base of the brain in the region of the *tuber cinereum* is damaged without injury to the pituitary body, severe polyuria results and a permanent *diabetes insipidus* may follow. Glycosuria, too, does not necessarily follow extirpation of the pituitary, nor do obesity and genital atrophy. A study of the brains of the animals after death has given several clues. Polyuria is not brought about by a lesion of the pituitary body but by a lesion of the region of the *tuber cinereum*. The genital syndrome is also associated with lesions in the region of the *tuber cinereum* and not in the pituitary body. The action of extracts of the pituitary body in arresting polyuria is not a phenomenon of the opotherapy order but a pharmaco-dynamical action as a drug. The authors consider that the pituitary body perhaps assists in the function and nutrition of important organic centres situated in its neighbourhood in the base of the brain.

The Skin in Temperature Regulation.

W. A. OSBORNE (*Journal of Physiology*, March, 1923) discusses some new aspects of the function of the skin in temperature regulation. He has shown that the skin is to be regarded as a gel containing water of imbibition. Evaporation of this water can occur independently of that of sweat and, when the air is cold, dry and in rapid movement, such evaporation of water may be contrary to the metabolic requirements of the body and may alter the texture of the skin. It is well known that after immersion of the hands in water the outer epidermis swells and becomes furrowed. In this state the skin gel has imbibed water and has expanded. If the hands are held in isotonic saline solution or in ox blood swelling and furrowing of the skin also occur. The author showed that it was not until the solution contained 10% of sodium chloride that the skin remained normal after being immersed for an hour. Sweat is a hypotonic solution and might be thought to produce swelling of the epidermis, but owing to surface evaporation there is considerable concentration. The uncomfortable feeling caused by cold moist air is attributed to the moist air being a better conductor than dry air. This cannot be the correct explanation, for the diathermic properties of all ordinary gases and mixtures of gases are very close to each other. In the moist air there is a partial equilibration of the skin gel with the vapour pressure of water in the air leading to a swelling and to a diminution of the small air spaces. As a result of this diminished air enclosed between the epidermic scales the conducting power of the skin is increased. Oiling the skin as is so often done in tropical countries possibly protects by filling up the air spaces between the epidermic cells with oil and so increasing conduction when the air is below body temperature.

Lactic Acid in Human Muscle.

RECENT workers have concluded that the production of lactic acid from glycogen is an essential part of the mechanism of muscle contraction and that during the stage following the contraction, the restitution stage, the greater part of the lactic acid produced is resynthesized to glycogen, the rest being oxidized to carbon dioxide. In the muscle of the frog the ratio of the lactic acid removed to lactic acid oxidized is about four or five to one. A. V. HILL, C. N, H. LONG AND H. LUPTON (*Journal of Physiology*, June, 1923) have endeavoured to determine in man what is this ratio. The lactic acid content of the blood of a man was determined before and after violent exercise and it was found that the lactic acid had risen from twenty-nine milligrammes per one hundred cubic centimetres before the exercise to one hundred and four milligrammes twelve minutes after the exercise, an increase of seventy-five milligrammes per one hundred cubic centimetres of blood. Assuming the blood volume to be 4.5 litres, this means that 3.4 grammes of lactic acid were present in the blood twelve minutes after one and a half minutes of exercise. This corresponds to a loss of 18.2 cubic centimetres of carbon dioxide per one hundred cubic centimetres of blood. A fall of 1.5% in the alveolar carbon dioxide five minutes after the blood had been withdrawn was actually determined. It is evident that there is a great amount of lactic acid liberated as the result of short violent exercise; the maximum amount must have been many times greater than the 3.4 grammes present in the blood twelve minutes after the exercise. During the later stages of recovery from exertion in man an excess of oxygen is being taken in and an excess of carbon dioxide given out in completing the recovery oxidations. In the body the excess of carbon dioxide given out does not equal the excess of oxygen taken in; there is a very considerable carbon dioxide retention in the body. It is natural to attribute this carbon dioxide retention to the combination of carbon dioxide with base liberated by the oxidative removal of lactic acid. The carbon dioxide retention may then be used as a measure of the lactic acid removed, the oxygen usage as a measure of the lactic acid oxidized. Applying this reasoning to the experimental figures it was found that the ratio of lactic acid removed to lactic acid oxidized was 4.2. It is clear then that the main part of the lactic acid produced in exercise is not removed by oxidation, but restored in the recovery process, just as has been found in the case of isolated frog muscles.

"Insulin" and the Respiratory Exchange.

H. W. DUDLEY, P. P. LAIDLAW, J. W. TREVAN AND E. M. BOOCK (*Journal of Physiology*, June, 1923) have studied the effect of "Insulin" on the respiratory exchange in mice. The output of carbon dioxide was determined by the method of Haldane. When 0.001 milligramme of an "Insulin" preparation per mouse was given, the carbon dioxide promptly fell from 10.8 grammes per kilogram per hour to 7.35 grammes and at the end of an hour was only 5.29 grammes. In another experiment "Insulin" was given with glucose and the carbon dioxide also fell but more slowly and to a smaller extent. In a further experiment "Insulin" was given alone and a fall from 9.16 grammes per kilogram per hour to 4.98 grammes promptly developed. A small hypodermic injection of glucose was then given and in spite of this the carbon dioxide output fell to 3.40 grammes per kilogram per hour. One cubic centimetre of a 5% solution of glucose was then given and a temporary rise to 4.87 grammes was observed. One hour later the output was down to 4.02 grammes per kilogram per hour. The glucose improved the condition of the mice but did not raise the carbon dioxide output to figures approaching the normal. As a result of similar experiments it was determined that there was always a diminution in the amount of oxygen absorbed. In one experiment, when 0.5 milligramme of "Insulin" had been given and the metabolism had fallen from 1.3 cubic centimetres per minute to 0.087 cubic centimetre per minute, no rise at all took place after glucose, although the mouse which was nearly dead before the injection of glucose, started to walk about again. The authors conclude from these experiments that, although sugar disappears from the blood, the injection of "Insulin" does not produce its effect by directly increasing the rate of combustion of glucose.

BIOLOGICAL CHEMISTRY.

Production of Secondary Anæmia.

J. M. D. SCOTT has examined the influence of diet upon the occurrence of secondary anæmia following repeated hæmorrhages in rats (*Biochemical Journal*, January, 1923). Although it would appear obvious that repeated hæmorrhages would produce a chronic anæmia much more easily in an animal fed on a poor diet which lacks iron and other food factors necessary for the formation of hæmoglobin, the author has found several limitations of this law in practice. Thus white bread and whole milk constitute a diet very poor in iron, yet containing materials for building blood. Again, a diet adequate in preventing anæmia in a fully grown animal is not sufficient for a growing animal. After some preliminary experiments on cats which were brought to an end by failure to prevent a gastro-intestinal infection among them, the author had recourse to rats. The rats were fed on a basal ration of whole milk and white bread supplemented in certain cases by ten grammes per hundred grammes rat *per diem* of green stuff, usually cabbage. The author assumed amounts of iron, vitamins, inorganic salts *et cetera* from the averages of the analyses of other investigators. Bleeding was readily accomplished by applying leeches and estimating the blood withdrawn by weighing the leeches. The method of Gowers was used to measure hæmglobin to avoid the necessary determinations of the standard of Haldane's method. The author notes the rapid change in the Haldane standard. The animals were bled about 1% body weight each week. The diluting fluid in the hæmatocytometer was Ringer's solution to which three cubic centimetres formalin per hundred cubic centimetres were added just before use. The results show that in a series of control rats put on a diet of bread and milk after weaning and not subjected to bleeding, the colour index (human = 1) was 0.5. In rats subjected to eight weekly hæmorrhages the colour index fell to 0.35. This index persisted two to three weeks and returned to normal six weeks after the last bleeding. In rats fed from the time of weaning upon bread and milk *plus* green stuff and subjected to eight weekly hæmorrhages, after the thirteenth week there was no appreciable fall in colour index. The colour index of the rat's blood is, roughly, the same when the animals are fed upon mixed diet, bread and milk, and bread, milk and green stuff. In a second paper (*ibidem*) the author describes a method of producing an anæmia characterized by a low colour index. The method described above was found by the author very tedious. He found it more simple to breed from mothers kept on white bread and whole milk for ten months. These female rats showed a colour index of 0.5. The offspring resulting from crossing with healthy males were fed on bread and whole milk. When eight weeks old the colour indices of the young were 0.35. The colour index remains about 0.35 from the eighth to sixteenth week. It then rises and reaches 0.5 at the twenty-fourth week of life.

Milk Diet and Rickets.

V. KORENCHEVSKY AND M. CARR (*Biochemical Journal*, February, 1923) describe some experiments on rats fed with fresh, heated or oxidized milk. They paid particular attention to the weight of the rats and to the chemical and histological characters of the skeleton. Three series of experiments were undertaken. In each series fresh milk, milk heated to 100° C. for seven hours, or milk aerated by a brisk stream of air and heated to 100° C. for seven hours was given to the rats. In the first series milk was given in one form or another *ad libitum*, in the second series fifteen to thirty cubic centimetres of milk were administered per rat *per diem*, while in the third series five cubic centimetres of milk were employed in the tests. In the rats of the first series fed upon fresh or heated or oxidized milk *ad libitum* the structure of the skeleton hardly differs from the normal chemically or histologically. When milk is oxidized at 98° C. for seven hours, its power of promoting growth and of warding off the onset of rickets is obviously decreased, as is seen with rats given five cubic centimetres of milk daily. Nevertheless these properties are so far retained that, with the daily ingestion of fifteen cubic centimetres and more of oxidized milk up to a period of one hundred and thirty-two days, rats hardly differ in growth and skeletal development from those fed freely on fresh milk. Fresh winter milk as supplied by a London dairy causes considerable improvement in rats suffering rickets induced by a deficient diet even when given in such small quantities as five cubic centimetres.

Salivary Secretion in Infants.

C. NICORY (*Biochemical Journal*, February, 1922) has made some observations as to the age of onset of the secretion of ptyalin in the saliva in infants. He points out that the infant's salivary glands are relatively rich in connective tissue and in blood vessels, while mucous cells are few in number. At two years of age it is impossible to distinguish the child's salivary gland from that of an adult. He has examined saliva collected on plugs of gauze and tested its behaviour with starch mucilage. The amount of ptyalin has been inferred from the time taken for the mixture of starch and diluted salivary secretion to reach the achromatic point on the addition of iodine water. Results have been obtained in respect to eighty different infants, some of whom have been breast-fed, while others have been hand-fed on various forms of diet. These results show that ptyalin is present in the saliva of fœtus at least one and a half months before term, although only in small quantities. The amount of enzyme gradually increases to the age of one year, when the composition of child's saliva becomes identical with that of the adult. Inquiries from mothers showed, to the author's surprise, that the larger number of infants received bread or ground rice from eleven weeks upwards and many even younger and that barley water was used by most of them. Apparently these children utilized a large quantity of starch. A careful survey of the figures failed to furnish evidence that children receiving starch in the diet secreted more ptyalin in the saliva than those fed on the breast entirely.

Parathyreoid Tetany.

E. G. GROSS AND F. O. UNDERHILL (*The Journal of Biological Chemistry*, September, 1922) have studied the balance of the inorganic ions of the blood in dogs from which the thyreoid and parathyreoid glands have been removed. Previous investigators have suggested a relationship between the occurrence of tetany and the concentration of calcium in the blood. The authors have followed the changes in the inorganic constituents of the blood throughout the various stages of para thyreoid tetany produced in dogs by removal of the thyreoid and parathyreoid glands. Normal values for each dog have been determined after a fast for forty-eight hours from blood obtained at the time of operation. These figures have been found remarkably constant in different animals. After the operation daily samples of blood have been taken for analysis until the death of the animal. The analyses have shown that the chief change lies in the concentrations of calcium and of potassium. When the ratio of potassium to calcium has reached ten, convulsive tetany has invariably made its appearance. Further, when the ratio of the monovalent ions divided by the divalent ions has reached forty the animals have developed convulsive tetany. The authors suggest that a high concentration of potassium or a low concentration of calcium may equally give rise to tetany.

Vesicant Action of Mustard Gas.

R. A. PETERS AND E. WALKER have studied the rate of liberation of acid by dichloro-diethyl sulphate and its analogues in its relation to the production of vesication of the skin (*Biochemical Journal*, March, 1923). The authors found that the rates of liberation of acid were dichloro-diethyl sulphide one hundred, dichloro-dimethyl sulphide five hundred, dichloro-diethyl sulphone one and of other analogues between four and one. The dichloro-dimethyl sulphide is not vesicant, while dichloro-diethyl sulphone alone of the analogues is vesicant. The authors conclude that the acid theory is rendered untenable by the fact that vesicant action and rate of acid liberation do not run parallel in the series of compounds studied. Any slight differences of solubility in fats cannot be sufficient to counterbalance the large differences found in the rate of liberation of acid.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held on June 29, 1923, at the B.M.A. Building, 30 to 34, Elizabeth Street, Sydney, DR. C. H. E. LAWES, the President, in the chair.

The Treatment of Diabetes.

PROFESSOR A. E. MILLS read a paper entitled "The Treatment of Diabetes" (see THE MEDICAL JOURNAL OF AUSTRALIA, August 4, 1923, page 113).

DR. R. COUPLAND WINN said that he would like to endorse what Professor Mills had said about the value of the Newburgh and Marsh diet. He had tried it for one patient who was still under his treatment at Bellevue Hill. Theoretically it seemed to him that they might begin treatment in a thin diabetic with even a higher calorific diet than that advocated by Newburgh and Marsh which only yielded 900 calories. As Professor Mills had stated, 1,500 calories were required by a man weighing fifty kilograms and in the event of the patient being emaciated the 600 calories difference would have to be supplied from his tissue protein. This would mean that his own tissues would set free nearly eighty grammes of glucose and this added to the thirty grammes in the diet would bring the glucose content to one hundred and ten. The patient he had under treatment was very susceptible to reduction in diet and had had acetone in her urine throughout, although this had been reduced to very small quantities. The reduction of the acetone seemed to have been brought about by a lowering of the fats somewhat below the standard recommended by Newburgh and Marsh.

DR. C. E. CORLETTE disclaimed any special knowledge of the modern treatment of diabetes, but he wished to make a few remarks on certain considerations connected with metabolism. He noted that in the diet advocated by Professor Mills the calcium content was extremely low. It was known that in diabetes the calcium balance was disturbed. If a patient had to take these diets for a long time, how could he replace his lost calcium? He suggested that it might be an improvement to make good this deficiency in the diet. The diets were of a simple character and it seemed to him that it was a great advantage to avoid the use of long and complicated tables. As the calcium and phosphate content of milk was considerable, milk suggested itself as a reasonable source for these substances. He wished to ask Professor Mills how he arrived at the caloric content of the bacon prescribed. This was a very important matter in view of the fact that lean bacon and fat streaky bacon varied so greatly in their fat content.

DR. L. W. DUNLOP wished to know whether the high fat diet was recommended for the fat type of diabetic. Labbé and other French clinicians had been using diets with a high fat content for the thin diabetic, but not for the adipose patients for a considerable time. It seemed to him that the fat diabetic might safely be allowed to consume his own fat, but for this patient, as emphasized by Lebbé, fat up to three hundred grammes might be advisable.

MR. R. GORDON CRAIG said that previously it had been taught that the prognosis in diabetes affecting young subjects was very bad. The chances of a patient of under twenty years had been regarded as much worse than the chances of a patient of forty-five, if controlled by dieting. He would like to know whether the new method of dieting had altered the prospect of young diabetics as compared with the olden days.

DR. R. SCOT SKIRVING said that he had been much interested in Professor Mills's paper. He gathered from it that in recent times the practice had been not to give fat to diabetic patients. Apparently there were cycles of fashion in treatment as in everything else. In the early days of his practice they had used an amount of fat in the diet of the diabetic that in later days had been considered incorrect and dangerous. He had always used a type of diet more or less on the lines laid down by Professor Mills and he had found that it yielded good results. In regard to the question of giving fat to fat patients, he did not quite follow what Professor Mills had advised, but they all knew that the disease was not so serious a condition in the fat and elderly as in the young and thin. Professor Mills had spoken of a patient of "eight stone" in weight, but he had not told them what were his age and height. Without some knowledge of the age, build and the height of the patient, the fact that he had weighed "eight stone" conveyed little to him. He noticed that Professor Mills had wallowed in grammes and calories which, of course, was quite right. There were so many of them that in a lecture it was impossible for a listener to pick up clearly what amounts of food were being given. He feared he was sufficiently old-fashioned to wish in a practical paper like that of Professor Mills to have grammes and calories translated into slices of bacon and ounces of cream. Teaspoons were good enough for him.

In his reply PROFESSOR MILLS expressed his regret that the speakers had not pulled his paper to bits. There had been scarcely any criticism. After Allen had published the results of his experiments on which his treatment of diabetes had been based and of which Jocelyn was so strong an advocate, all of them had adopted the practice of starving diabetic patients. But the results obtained by him, the speaker, from this treatment had not been satisfactory. The pendulum had swung too far and it was swinging back and they were basing their practice on sound physiological principles. In reply to Dr. Coupland Winn, he said that a patient weighing "eight stone" would not get enough calories in the earlier diets referred to, but this defective diet would undoubtedly result in the burning up the excessive glucose and fatty acids in his blood. The deficiency of calories would be made up by the consumption of the fat and protein of the body. However, this partial starvation would continue only for a few days, for with the disappearance of glucose and of fatty acids from the urine more fats and carbo-hydrates would gradually be added to the diet until the needs of the body were satisfied. In severe cases it had to be borne in mind that many of the islands of Langerhans were probably destroyed. If most of the islet tissue was gone, there was no hope of recovery; no dieting could do any good. It was important to ascertain that diacetic acid was present. If the fat in the food could be increased, as could generally be done, without increasing the output of diacetic acid, it should be done. Referring to Dr. Corlette's point in regard to deficiency of calcium, he admitted that this was a weak spot in the diets. He recognized that it would be advisable to pay attention to the point and to supply calcium to cover the patient's needs. Replying to Dr. Scot Skirving, he said that the patient who had received the diets, was a man of twenty-seven years; his height was 170 centimetres (five feet, seven inches); he was of moderate build. He did not agree with Dr. Scot Skirving that it was better to deal with rashers of bacon than with grammes, nor could he agree that it was wiser to use teaspoons which varied so much in size, rather than the more accurate decimal measure of grammes and centimetres. With regard to the prognosis in fat people and very young people, Professor Mills said that fat diabetics should certainly have their food restricted so that the amount of calories in their diet was insufficient for their bodily. This would result in the burning up of some of their fat and so they would lose weight. In regard to thin diabetics, he thought that many of these poor patients had been the victims of repeated infections by the time they came to their doctor and that made the prognosis more serious. But the prognosis depended upon their response to treatment and to the amount of carbo-hydrate they could deal with. This in turn depended on the amount of islet tissue of the pancreas that was functionating efficiently. In the case of many of these thin patients diets on the lines suggested in his paper would give beneficial results. The fundamental principle of rest for an organ overworked and damaged was the foundation on which dietetic treatment was based. In conclusion Professor Mills disclaimed that his paper had contained anything original, but the importance of the principles he had enunciated were sufficient justification for reading the paper before the Branch.

Bone Growth and Rickets.

DR. ELSIE DALYELL, O.B.E., gave a demonstration, entitled: "Nutrition in Relation to Bone-Growth in Children" (see page 166). The demonstration was illustrated by numerous lantern slides.

PROFESSOR MILLS expressed his gratitude to Dr. Dalyell for her excellent exposition of a very difficult subject. He doubted whether he had ever listened to a more suggestive or more instructive address. Referring to the discovery of the part played by ultra-violet rays in the prevention of rickets, Professor Mills cited the opinion expressed by Professor C. J. Martin, that it was probably one of the most important discoveries of recent years. This action had previously been unsuspected and this made it all the more remarkable. In referring to the importance of cod liver oil, he stated that formerly it had been held that cod liver oil acted solely in virtue of its fat content. The discovery of the anti-rhachitic vitamin in cod liver oil had been a very great advance. He asked Dr. Dalyell whether rickets was prevalent among the Eskimos who lived on blubber with but little carbo-hydrate and in a climate where sunlight for a great part of the year, at any rate, was absent.

DR. HARVEY SUTTON, O.B.E., wished to add his measure of thanks to Professor Mills's. He had been impressed by the remarkable photographs that had been thrown on the screen. He was convinced that photo-synthesis had come to stay. In spite of Dr. Dalyell's clear account of the work and of the results obtained in Vienna, he still adhered to the doctrine of the accessory food factor as the determining agent in the prevention of rickets. Why had cod liver oil been selected, if it were not on account of its accessory food factor? The problem of rickets in Australia was not yet solved. Surely it could not be claimed that lack of sunlight was the important causal agent in Australia. He had paid close attention to the question and did not consider that rickets had any special seasonal incidence in Australia. Rickets was four times as common among infants who were artificially fed before six months, than among infants fed at the breast for nine months. Again it was very doubtful whether rickets occurred with so much greater frequency among children living in cramped dwellings than among those living in houses with good accommodation. It was true that the children of families occupying houses with less than four rooms were thrust out of doors more often and for longer periods daily than the average child. The question of poverty and deficient diet of the mother had to be taken into account. The difference between the causation of rickets in England and in Australia was mentioned. Rhachitic teeth were common in England, but almost unknown in Australia. This manifestation was almost diagnostic of the English form. Under Australian conditions the percentage and severity of rickets diminished as the children approached school age and often disappeared before the age for leaving school. This looked as if the disease depended on a dietetic cause. It was certainly not a deficiency of sunlight, but was probably the inadequacy of some constituent of diet. Recovery readily occurred under dietetic influences. Dr. Sutton referred to experiments which were being conducted in Sydney in regard to the effect of milk diet. Children receiving regular extra supplies of milk gained in weight three times faster than children on ordinary diet. The more serious deformities caused by rickets were uncommon in Australia. He was convinced that rickets was a very complex problem. Gastro-intestinal disturbances were very common in its early stages. That these disturbances led to faulty calcium metabolism was most likely. It might explain how differently children responded to identical conditions. One thing had been established and that was the absence of a fresh element in the diet of children when developing rickets. Whether infection played a part in the ætiology of the disease was not easy to determine.

DR. BURTON BRADLEY congratulated Dr. Dalyell on her excellent lecture. He thought that she had demonstrated the extreme importance of coordination in research work. He pleaded for the introduction in Australia of team work in research into the causes of disease.

DR. MARY BOOTH referred to her experience when she had been attached to the Education Department of Victoria. Rickets had been rare among school children. It appeared late and disappeared gradually during school life.

MR. R. GORDON CRAIG said that he had been present in Vienna when the group from the Lister Institute, including Dr. Dalyell, had just completed the first year of their work. A little later at the Australasian Medical Congress at Brisbane the whole causation was laid at the door of deficiency of the accessory food factors. That evening that term had not been mentioned. It seemed to him that there were two schools of thought, the vitamin school and the ultra-violet school. Was it not probable that the truth lay between the two? He wished to endorse all that Dr. Dalyell had said of the extraordinary accuracy and scientific methods adopted in von Pirquet's Kinderklinik in Vienna.

DR. C. E. CORLETTE thanked Dr. Dalyell for her most interesting discourse. He had paid a great deal of attention to questions of calcium and phosphate metabolism. It was important to realize that calcium metabolism lay at the bottom of all the bodily processes. In rickets there was a deficiency of calcium. The same obtained in scurvy and in many other diseases, including diabetes. He referred to the work that had been carried out by Erdheim in regard to the relation of the parathyreoid gland and calcium metabolism. Erdheim had conducted a very large number of experiments on rats and had shown by partial destruction of the parathyreoid glands a condition entirely similar to rickets was produced. Moreover, he had described definite changes in these glands in children suffering from rickets. Dr. Corlette also mentioned the development of spontaneous rickets in rats in Vienna.

DR. C. H. E. LAWES added his thanks to those of the previous speakers.

In her reply, which was necessarily brief on account of the lateness of the hour, DR. DALYELL said that according to Stefanson rickets did not occur among the Eskimos. They had made special inquiries on this point, but without result, as no proper investigation had been made. She explained that in her demonstration she had been compelled to restrict her remarks to one aspect of the research, as it would have been impossible to have covered the whole ground, and she had purposely avoided a discussion of the accessory food factors. This did not signify that she and her colleagues had relinquished the position that the anti-rhachitic vitamin was of importance in connexion with rickets. Deficiency of this accessory food factor certainly did play a part in defects in calcium metabolism, but the action was obscure and complex. Replying to Dr. Corlette, Dr. Dalyell said that Erdheim's claims in regard to the parathyreoid gland had not been confirmed by Korenchevsky at the Lister Institute. A critical study had revealed that Erdheim's experiments were insufficiently controlled and that he had not excluded other causative factors that might have led to the development of rickets in his rats.

A MEETING OF THE WESTERN AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Perth Public Hospital on June 20, 1923, DR. D. M. MCWHAE, C.M.G., C.B.E., the President, in the chair.

Extra-Dural Spinal Hæmorrhage.

DR. R. H. CRISP reported the history of a patient, a male infant, aged seven days, who had suffered from extra-dural spinal hæmorrhage. He had been born at full term and had been normal size. Labour had been normal and not unduly prolonged. No instruments had been used. No asphyxia had been present at birth. He had progressed normally until June 15, 1923, when he had been seven days old. At three o'clock in the afternoon he had had begun to scream and had continued to do so until seven the same evening. He had appeared to be in pain. Four cubic centimetres of castor oil had been given. He had remained quiet for about two hours and had commenced screaming again. There had been a convulsion. Some abdominal distension had been present and a soap and water enema had produced a slight action of the bowel. The patient had not vomited. He had been brought to hospital the same night.

On admission it had been found that the distension had subsided and that a large normal motion had been passed. A slight degree of umbilical hernia had been present. Healing had not completely taken place after the separation of the cord and redness from mild asepsis had been present. The edge of the liver had been palpable below the costal margin, but the spleen had not been palpable. Rigidity of the arms and legs and of the spine had been present. Rigidity of a lesser amount had been present in the neck. There had been frequent spasms of increased rigidity of the limbs and of the back which had tended to become slightly arched. These spasms had been associated with difficulty of breathing and the child had become blue and distressed. He had been able to open the jaw without much difficulty. He had been unable to swallow and had been fed through a nasal tube. These spasms had closely resembled those of tetanus. The fontanelle had not bulged to an abnormal extent. Dr. Crisp said that the diagnosis had been thought to lie between *tetanus neonatorum* and meningeal hæmorrhage. The former had been suggested by the nature of the spasms and the signs of umbilical sepsis. Lumbar puncture had been performed and about ten cubic centimetres of blood had been withdrawn. Three thousand units of anti-tetanic serum had been given and this had been followed by the administration of horse serum every four hours. Sixteen hours after admission to hospital the temperature had arisen from 37.40° C. (99° F.) to 38.9° C. (102° F.) and the child had died. At *post mortem* examination it had been found that the brain was apparently normal. Some congestion had possibly been present but no clots had been found. On opening the spinal canal a very unusual condition had been discovered. The spinal cord and its meninges had been found lying literally in a trough of blood from a large extra-dural hæmorrhage. The blood had extended almost the whole length of the canal. Dr. Crisp thought that the hæmorrhage had been caused by a disease of the new born and not a birth injury. He had come to this conclusion on account of the suddenness of the onset, the interval of seven days between brith and the first appearance of symptoms and the fact that the confinement had been a normal one. He said that if the child had lived, frequent lumbar puncture would have been performed. Arrangements had been made for an injection of whole blood.

Cerebellar Ataxia.

DR. ROBERTA JULL showed a child, aged seven and a half years, whom she had examined during a routine inspection of one of the suburban schools. The child was the eldest of apparently healthy parents. The second child was normal in development. The mother had been well during pregnancy and no difficulty had been experienced at the confinement which had been attended by a medical practitioner. The child had been very fat when born and had remained so for some years. The mother had been told that a blue mark on the child's head was a nævus. The child had not been able to suck for the first fortnight and had been fed by milk obtained with a breast pump. Speech had begun at the age of one year but had been very indistinct. It had always been very slow; the mother had stated that the child had been taught to speak slowly on account of the difficulty in articulation. The child had not crawled but had been in the habit of rolling over and over on the floor; this had not occurred until after her first birthday. She had attempted to walk at the age of two years. For a long time she had been unable to bend her knees while walking, she had been very uncertain on her feet and had frequently fallen. On one occasion she had broken an arm. An anæsthetic had been administered for the setting of the arm and the child had taken it well. Dr. Jull pointed out that the child was clumsy in the movements of her hands. She had frequently jammed her fingers in gates and doors. Trembling of the hands had been present to such an extent that she had only recently been able to feed herself. She had often spilled liquids. Movements had been spastic in character. Teeth had begun to appear at the age of six months, they had decayed rapidly and had all been taken out before she had attained the age of two years. Enuresis had been present, but this had gradually improved and control was seldom lost. Dr. Jull said that the child was going to school and was able to read and write. Writing was accomplished by holding a pencil in the palms of both hands and guiding its movements by leaning the arm on the table. The result had been irregular and poor, but legible. Her mental age had been tested by a competent psychologist who had used the Stanford modification. It had been found to be that of a child aged six years and two months. Retardation had thus amounted to one year and four months. Dr. Jull suggested that the condition was due to cerebellar hæmorrhage. It had been arranged that further observation and tests should be carried out at the Children's Hospital. Dr. Jull advanced the view as a result of reading an article by W. Colin MacKenzie in *The British Medical Journal* of May 12, 1923, that the administration of thymus gland extract might be of assistance. A course of thyreoid gland extract had been undertaken about eighteen months previously. Some good had resulted, but the treatment had been dropped because the child had not continued to attend the practitioner under whose advice it had been given.

DR. D. M. MCWHAE said that he was inclined to regard the condition of Dr. Jull's patient as a cerebellar ataxia, which was probably the result of a hæmorrhage not involving the pyramidal tracts. He advised the use of Fränkel's exercises.

DR. R. S. MCGREGOR, D.S.O., who had watched the child as an outpatient at the Children's Hospital, said that the condition had been improved for a time by the administration of thyreoid extract. He thought that better results might possibly be obtained with the use of "Hormotone."

Ulcer of the Stomach.

MR. F. A. HADLEY showed a specimen of the pyloric end of the stomach which was the seat of two apparently simple ulcers. He said that the patient, a man, aged sixty-two years, had suffered from gastric symptoms for fifteen months. Vomiting had been present without much pain. The history had suggested the presence of carcinoma.

Full Time Ectopic Gestation.

DR. J. KYNASTON COUCH reported the history of a full time ectopic gestation which had occurred in a married woman aged twenty-eight years. The patient who was a nullipara, had complained of acute pains in the left side of the lower portion of her abdomen after four weeks of married life. She had not missed a period. The pain had occurred in the first week of July, 1922; she had not menstruated since that date. In March, 1923 the patient had gone into a maternity home; she had had such alarming symptoms that a diagnosis of a twisted ovarian cyst accompanying pregnancy had been made. All pains had rapidly disappeared. From this time until the middle of May, 1923, frequent attacks of pain had occurred. She had been examined under anæsthenia and a diagnosis of a uterine fibroid together with an ovarian tumour had been made. At this time she had been transferred to the care of Dr. Couch. The pains had then been so frequent and the woman had been in such a precarious state that he had determined to perform Cæsarean section. On examination Jacquemier's sign had not been present, no abnormal signs had been discovered in the breast and the fœtal heart had not been audible. Dr. Couch had felt something move while the woman was straining. A large tumour the size of a full time pregnancy had been present in the abdomen. On vaginal examination, Dr. Couch had felt a pyramidal mass continuous with the side of the cervix and occupying the right half of the pelvis. He had made a diagnosis of missed labour and fibroid tumour. At operation he had found a large tumour with a mass of adhesions to the colon and small intestine. These had been pushed aside and an incision made. Fluid had run out and a full time child slightly macerated had been extracted. The wall of the cyst had been 1.25 centimetre (half an inch) thick. Up till this time Dr. Couch had regarded this as the uterine wall, but his suspicions had been aroused by the absence of contraction and of bleeding from the cut edge. Dr. D. P. Clement, who was assisting, had diagnosed as a full time ectopic pregnancy. What had previously been regarded as the fibroid had really been the body of the uterus. The patient had made a rapid recovery and had left the hospital three weeks later. Dr. Couch said that he had reported the case in order to show the

difficulty in recognizing a full time ectopic pregnancy. At least six experienced men had examined the patient and he had not recognized the condition when the abdomen had been opened. He expressed the opinion that the ectopic pregnancy had ruptured into the broad ligament in July, 1922, and that a false labour had occurred in March, 1923.

DR. R. C. MERRYWEATHER said that he had seen the patient in March, 1923, and had regarded the condition as an ovarian cyst together with a fibroid or pregnant uterus. The cervix at that time had been normal. The pain had appeared to be due to a twisted pedicle or to some leakage from the cyst.

Child Welfare Centres in Great Britain.

DR. ROBERTA H. M. JULL read a paper entitled "Some Child Welfare Centres in Great Britain: Their Methods and Results" (see page 161).

DR. J. DALE, O.B.E., after thanking Dr. Jull for her paper, said that it was a very remarkable and significant fact that the infantile mortality in England had dropped to 80%. In Perth for the year 1921 the rate had been 75%. He thought that they at Perth would soon have to look to their laurels. He regarded the death rate from infantile diarrhœa as being excessively high. There was no doubt in his mind that the reduced mortality in Great Britain was largely due to infant welfare centres and was strongly of the opinion that there was great need for similar work in Australia. Attempts to begin such work were already being made in Perth by two societies, the State Children's Protection Society and the Silver Chain. He was satisfied that good work would be done if the efforts of each were co-ordinated. He considered that it would be possible to reduce greatly the diarrhœa third of infantile mortality, but admitted that it was more difficult to deal with the percentage due to ante-natal conditions and to pneumonia.

DR. MILDRED CATON thanked Dr. Jull for her paper.

DR. R. H. CRISP, the Chief Resident Medical Officer at the Children's Hospital, spoke feelingly of the great advantage of infant welfare societies. He emphasized the importance of a reliable milk supply and the desirability of co-ordination between welfare societies and hospitals.

DR. R. C. E. ATKINSON, the Commissioner of Public Health, also thanked Dr. Jull for the amount of material she had collected and embodied in her paper. He felt that it would be of extrme use to the Department of Public Health and to the community at large.

DR. F. L. GILL wished for an expression of opinion as to whether there would be any objection, ethical or otherwise, to the formation of clinics by the medical men of a municipality for the purpose of imparting information to young or expectant mothers.

On the motion of Dr. R. C. Merryweather the matter was referred to the Council.

MEDICO-POLITICAL.

A MEETING OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held in the Lister Hall, Hindmarsh Square, Adelaide, on July 26, 1923. DR. JAMES RIDDELL, the PRESIDENT, in the chair.

Listerian Oration Fund.

DR. A. A. LENDON gave a short account of the present state of the Listerian Oration Fund. He said that one of the most successful undertakings of the Branch had been the Listerian Oration, delivered annually till interrupted by the war, by a visitor from one of the other States. Unfortunately it had no endowment and the lecturer was put to considerable expense, both directly and indirectly. It had been suggested that an appeal might be made to all surviving past Presidents of the Branch and to the representatives of such as were deceased for a contribution of one guinea as the nucleus of an endowment. The result of the appeal had been eminently satisfactory, thirty subscriptions having been sent in, ranging in amount from one guinea upwards as follows: Twenty-four of one guinea, three of two guineas, one of five pounds fourteen shillings and one of twenty-five pounds, making thirty subscriptions totalling £72 14s. To this sum was added the generous gift of an anonymous layman of £29 8s. This together with the savings bank interest yielded a total of £105 8s. 6d.

The following was a list of those who had contributed to found the "Listerian Oration Fund," in addition to the anonymous donor: (*a*) Representatives of deceased Presidents, Mrs. Davies Thomas, Mrs. William Gardner, Mrs. T. K. Hamilton, Lady Stirling, Mrs. Melville (daughter of the late William Gosse), J. H. Gosse (nephew of the late Charles Gosse), Mrs. Melville Jay, Mrs. A. A. Hamilton, Dr. John Corbin (son of the late T. W. Corbin), Mrs. W. L. Cleland and Dr. H. Gilbert (grandson of the late G. W. Clindenning). (*b*) Past President: Dr. J. H. Evans, Dr. W. A. Giles, Dr. C. W. Hamilton, Dr. J. A. G. Hamilton, Dr. W. T. Hayward, Dr. F. S. Hone, Dr. A. A. Lendon, Dr. Marten, Dr. A. M. Morgan, Dr. H. S. Newland, Dr. Riddell, Dr. Bronte Smeaton, Dr. H. Swift, Dr. M. J. Symons, Sir Joseph Verco, Dr. W. A. Verco, Professor Watson and Dr. T. G. Wilson.

It was proposed to ask all future Presidents to contribute to the Fund.

The Council approved of Dr. W. A. Verco and Dr. A. A. Lendon acting as trustees of the Fund until it could be handed over to the Branch after incorporation.

It was proposed to have a medal struck and to present a copy to each Orator and, when the income reached a certain amount, to add a cheque to defray his expenses in coming over to Adelaide. Although the original intention was to confine the subscription to past Presidents, the Council, influenced by the fact that many of the members of the Branch might wish to contribute to the Fund, invited subscriptions from all who were inclined, to be forwarded to Dr. A. A. Lendon, North Terrace, Adelaide.

Life Insurance Societies.

DR. A. A. LENDON uttered a warning to members of the Branch with regard to life assurance company promoters and their wiles. Many practitioners felt flattered if approached by a well-spoken and respectably attired individual who was anxious to find a chief medical officer for a life assurance company shortly to be launched in South Australia. He showed a printed prospectus which illustrated the enormous profits awaiting the company. He mentioned the name of the Premier of the State or of the ex-Lord Mayor, perhaps, whose name figured on the prospectus as one of the firm of solicitors to the undertaking, as well as chairman of the board, and hinted that it was the aforesaid chairman who had suggested the interview. In addition to the chief medical officership a seat on the board might be offered carrying with it an assured income. As evidence of the practitioner's interest in the concern, he was asked to insure his life for a modest sum, say £5,000; one condition would be that he take up a certain number of shares in the company, say about £1,000 worth. The promoters required 25% on application. These financial sharks had been in evidence quite recently in Adelaide and Dr. Lendon understood that some of their members had been taken in. Invitations from the Australian Mutual Provident Society, the National, or other reputable society were quite different, but he warned his listeners of less familiar names. Such companies, even if founded with honest intentions, could not return dividends for several years nor could they declare legitimately earned bonuses for many a long day.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

GRIEVE, HERBERT RONALD ROBINSON, M.B., Mast. Surg., 1920 (Univ. Sydney), Weedon Road, Artarmon.

HYNDES, KATHARINE, M.B., Ch.M., 1922 (Univ. Sydney), Marrickville Road, Marrickville.

LOUDON, DERBY BRITON, M.B., Ch.M., 1923 (Univ. Sydney), 40, The Boulevard, Lewisham.

RAMSAY-SMITH, VIVIAN, M.B., Ch.M., 1913 (Univ. Edin.), University Club, Sydney.

SCHMIDLIN, FRANK, M.B., Ch.M., 1922 (Univ. Sydney), St. George District Hospital, Kogarah.

SHELLSHEAR, KENNETH EDEN, M.R.C.S. (Eng.), L.R.C.P. (Lond.), Mitchell Street, Greenwich Point.

WISE, ALLEN GLENDENNING, M.B., Ch.M., 1923 (Univ. Sydney), Florence Street, Strathfield.

Post-Graduate Work.

SPECIAL POST-GRADUATE LECTURES IN MELBOURNE.

THE Honorary Secretaries of the Melbourne Permanent Committee for Post-Graduate Work announce that the second lecture of the special course to be delivered by Professor C. J. Martin, F.R.S., will be given on September 20, 1923, instead of September 18 (see THE MEDICAL JOURNAL OF AUSTRALIA, August 11, 1923, page 158). Sir John MacFarlane, the Chancellor of the University of Melbourne, will take the chair at the inaugural lecture on September 17, 1923, at the Assembly Hall, Collins Street, Melbourne.

Correspondence.

THE LEUCOCYTES IN HEALTH AND IN DISEASE.

SIR: I am quite in accord with Dr. Barlow's statement in his letter in your issue of July 7, that much more work is necessary before we can accept as the last word on the subject any published figures in regard to the leucocytes in health. I was aware that the comparatively few examinations I recorded of apparently normal young adults were insufficient to draw any conclusions other than those of the extremes of variation in the apparently normal individual. The extremes of variation in the polymorpho-nuclear count in my series were 37% and 69.8%. Allowing for the fact that so few people were examined, it seemed reasonable to presume that in a larger series of apparently normal adults still greater variations would occur; hence the statement, to which Dr. Barlow objects, that the polymorpho-nuclear count in the normal adult probably varies between 30% and 80%.

It is always difficult to conclude that any particular person falls under the classification of "normal" in regard to health. But from the observation over a period of several months of most of the individuals whose blood was examined, it was stated that they were apparently normal. And from their occupation—doctors, advanced medical students and nurses—one may assume that they would be likely to be aware of any variation in their health which would suggest a deviation from the "normal."

Most observers are aware of the fallacies that arise in the method of counting leucocytes from films. As explained in the paper under discussion, various means were taken to minimize such errors. This method of differential counting of the leucocytes is that in common use throughout Victoria.

From the figures of other observers quoted in the paper where the average polymorpho-nuclear counts of series of apparently healthy adults were under 50%, it would seem that a polymorpho-nuclear count less than 45% in apparently normal adults is not as rare as Dr. Barlow suggests. His admission that the normal polymorpho-nuclear count is sometimes in the region of 45% is a statement that probably would not have been accepted until recent years (assuming he is referring to adults).

Cases in which the physiological variation of the differential leucocyte count approaches the realm of the pathological, are cleared up by two or three examinations at different times. Thus I agree with Dr. Barlow that used with discrimination differential leucocyte counts are of definite value in diagnosis and prognosis.

Finally I would go further than Dr. Barlow and urge that, in coming to a conclusion regarding the normal standards of the leucocyte count in adults, we should investigate the blood of at least several hundred apparently normal individuals under all conditions of life by various tried methods of differential counting of the leucocytes.

In sickness we have to examine the blood of different patients—outdoor labourers, people of sedentary occupation, patients who walk into the consulting room, others who have been in bed for weeks. The factors influencing the normal leucocytic formula are so many and so various that every possible varying factor should be noted.

Yours, etc.,

K. DOUGLAS FAIRLEY.

Moonee Ponds, Victoria.
July 10, 1923.

THE CLINICAL THERMOMETER.

SIR: Can you or any of your readers give me any information as to the date at which the clinical thermometer came into use? Who first introduced it?

I have been delving into the old hospital records of intermittent and other fevers which occurred in this settlement, and have become interested to know when diagnosticians first got the assistance of the clinical thermometer.

Yours, etc.,

E. S. JACKSON.

St. Helen's Hospital, South Brisbane.
July 25, 1923.

[In 1709 Fahrenheit introduced the first scale for measuring temperature. The thermometers employed were somewhat crude, but the results appear to have been moderately accurate. It appears that Boerhave, of Leiden, Holland, made observations on the variations of the body temperature in fever between the years 1709 and 1729. The temperatures were expressed in accordance with the Fahrenheit scale. In 1730 Réaumur introduced his scale and in 1742 Celsius introduced the centigrade scale. It would seem that Sanctorius, who died about 1638, used an instrument of his own invention for the measurement of the body temperature. Boerhave probably used the thermometer introduced by Fahrenheit. His pupil Van Swieten speaks of the greater accuracy of Fahrenheit's mercury thermometer than the thermometers containing other fluids. Clinical thermometry was probably introduced by de Haen in Vienna during the second half of the eighteenth century. He also used the Fahrenheit thermometer. In 1740 Charles Martin published in England records of the temperature of the human body in health. John Hunter, J. Davy and many other English writers measured the body temperature in clinical practice during the eighteenth century. About 1850 Bärensprung and Traube published the first systematic records of the behaviour of the body temperature in disease. Both used ordinary thermometers which are described as being too burdensome for practice outside hospitals. Variations of a tenth of a degree Fahrenheit, however, were regarded as of importance. Very shortly after Wunderlich began his extensive observations on thermometry. He used mercury thermometers, but found a defect in the fact that if the bulb were cooled by exposure during the reading, the column of mercury fell and thus rendered the reading inaccurate. He used a thermo-electric apparatus and also dealt with the thermograph for recording continuous observations of temperature. His classical book was published in 1868. It is difficult to determine the exact date when the clinical thermometer was invented, that is a maximum thermometer in which the thread of mercury is broken close to the bulb as the mass of metal contracts on cooling. It was certainly not in use in 1850, but was in use in the early "seventies."—EDITOR.]

ON THE DIAGNOSIS AND OTHER ASPECTS OF PULMONARY TUBERCULOSIS.

SIR: Surely the time has arrived when definite or minimum standards or requirements be laid down so that we can say, this or that patient is suffering from pulmonary tuberculosis and ought to be treated as such. At present and as time goes on less and less seems to be demanded on which to form a diagnois, with the result that some are diagnosed on very slight evidence and others are pronounced free from disease, who eventually are markedly affected. The data on which diagnosis is based, may be shortly stated as follows:

1. Many insist on definite, permanent signs in the upper part of one or both lungs.

2. Greater value is placed by others on the constitutional symptoms and their history than on physical signs in the lungs. This has been advocated by some leaders in the Trudeau School in the Saranac Lake district. Dr. Marcus Paterson, late of Frimley, supports this strongly and speaks slightingly of physical signs. With the consideration of the history of symptoms he couples careful observations of the mouth temperature and ignores the rectal temperature altogether. If he would only take the trouble to compare the temperature of the mouth and rectum in health and disease, I think it is probable he would begin to wonder what the normal temperature really was.

3. Many physicians of repute demand bacilli in the sputum before making a positive diagnosis. It is with surprise, therefore, that on reading the discussion on tuberculosis at the British Medical Association meeting, held in Glasgow, introduced by Professor Rist, of Paris, whose views were supported by Dr. M. Paterson, I read: "Professor Rist says that one positive examination means very little—I would say it means nothing." In the face of those statements made by men of no mean repute and where the sputum specimen is reliable, the question naturally suggests itself: "Where are we?"

4. Regarding Koch's subcutaneous test, I think I am voicing the general opinion at present that a reaction only means a tuberculous focus somewhere.

5. Seriological tests, in this country at least, are probably only in the experimental stage.

6. The X-ray negative plate is hailed by many as "the oracle" in pulmonary diagnosis. Probably a great deal of information of a reliable kind will be obtained by this method, but I would venture to suggest that a radiogram is not only a record of present happenings, but is also what may be called a biogram of pathological occurrences from birth or even before it. It is a pity that a clear standard of a healthy chest could not be given and recognized as such by a committee of well-known radiologists and that any divergence from this could be definitely stated as due to tuberculous infection and also evidence given of active clinical disease. This was excellently done in the Broken Hill Commission. An attempt in this direction in children has been made by the National Tuberculosis Association of America. The thorax is theoretically divided into three zones, but for some inscrutable reason calcified nodes under certain conditions are disregarded. To me the paper is unsatisfactory and the text not very clear, but this may be due in part to my want of knowledge of radiology.

Having reviewed shortly the means employed in diagnosis, I hope I will not be charged with exaggeration when I say that as far as fixed standards are concerned, the conclusions drawn are chaotic. None of the above five points given by me may prove perfectly correct, still the time has come when some compromise might be made and a fixed standard formulated. Our patients trust us to tell them what is right in diagnosis and we direct their treatment accordingly.

Some remarks might be made on conditions which are wrongly diagnosed as pulmonary tuberculosis, but their consideration would lengthen this letter unduly. I take the liberty of mentioning partial atelectasis of the right apex; it has also been described as apical collapse. This is fully described by Krönig and has been observed by Huggard, of Davos. The only notice I can find in Australian literature is a case shown by Croll, of Brisbane, some years ago. It is frequently diagnosed as tuberculous. Formerly practitioners refrained from giving a frank diagnosis; they feared the dreaded name. Now, anything they fail to understand about the pulmonary apex is labelled incipient tuberculosis.

Classification is worthy of a few remarks and might be simplified. Those in use are formulated by Turban, Turban-Gerhardt, the National Tuberculosis Association of America, Walters, late of Crooksbury, Crocket and Philp. All of them are founded on an anatomical basis. Walters with this couples cases with and without fever. Philp encumbers his with letters and numerals, which is supposed to make it easier to notify in writing the number and extent of the lobes affected. All have their advocates and new classifications are steadily on the increase and promise to be as numerous as advertised cures for consumption—and as useful!

As classification stands at present, it seems to me to be a fatuous endeavour to confer mathematical exactitude on a many-sided disease, which is and ever will be beyond the ken of an exact science.

To sum up, we are not one bit further advanced in this direction than in the days of Laennec and his three stages. To quote a recent and popular opera: "Let it go at that!"

Some time ago I drew your attention to statistics published by Sir James Fowler in 1898, where he stated that he only found evidence of obsolete tubercle in his consecutive autopsies in non-tuberculous cases at the small rate of 9%. Since my short note in your journal he has written another book on pulmonary tuberculosis, and if your readers care to look on page forty of Fowler's new work, you will find that he repeats those figures and backs them up by statistics of consecutive *post mortem* examinations made by Dr. Sydney Martin. Excluding all cases where death was due to tuberculosis, Martin puts down his findings at 9.4%, which forms a very marked contrast to those of Nägle and his *confrères* at anything from 80% to 95%. The latter have become almost traditional and are taught in all the schools of repute in Europe, America and probably in Australia also. It is *le mode* at present to talk of the protective influence of tuberculosis contracted in childhood. Is there any proof of it in Australia?

Professor Wassermann in a paper lately published states that the only immunity to tuberculosis is an unhealed focus in the human body. If this be true, I venture to suggest that an analogy may be made between this disease and *lues*. The only man who enjoys immunity from syphilis, is the uncured syphilitic. If the immunity to tuberculosis is so powerful as it is reputed to be, what about the death rate in families where there is a very bad history? Maxom King, of New York, and the late Arthur Latham, of St. George's, from a small series of cases have tried to prove that it is protective. Every general practitioner who may honour me by reading this letter and who has been in large practice, must be aware of the great fatality in families with a very bad history, amounting, in some instances, to nothing short of an appalling tragedy.

Dr. Bushnell, of Washington, has written a very readable and interesting book on the epidemology of this disease in the Marquesas and other islands in the southern seas. With all its excellence it is not altogether free from bias and is open to criticism in many places. But let that be as it may, what I do hold is that this so-called protective infection of childhood has never been proved in Australia. Surely the time is ripe to disown the tutelage of Europe and America and to commence and observe for ourselves. Therefore, I now make an appeal to all the hospitals for sick children in Australia to make a combined and concrete effort to apply the von Pirquet test, X-ray pictures and, if possible, *post mortem* examinations in all children unaffected with clinical tuberculosis.

Yours, etc.,

A. STEWART.

123, Wickham Terrace, Brisbane.
August 1, 1923.

POST-GRADUATE WORK IN MELBOURNE.

SIR: As a young general practitioner, may I endorse the truth of Dr. J. H. Anderson's views on the Melbourne Post-Graduate Course. All who attended the 1922 course, must pay tribute to its all-round excellence, the enthusiasm of the clinicians and their careful preparations of the clinics. The only improvement that I can suggest—and this, I understand, has not yet been carried out solely on account of lack of finances—is the publication of the annual proceedings; "the letting out," as Dr. Anderson proposes, "of every lecture and demonstration given under the committee's control."

The value of the printed word, recalling the clinic or demonstration to the often isolated country practitioner,

cannot be overestimated. An excellent example of this is the printed notes of Dr. Turnbull's post-graduate cardiac lectures in 1921.

Perhaps, too, the winter lectures and those for the M.D. could also be made available. Might not the Committee be justified in raising the post-graduate fees to permit of this suggestion being carried out? Were this done, it is reasonable to presume that the membership would increase by the inclusion of those graduates who, anxious to keep abreast with modern opinion, are not able for various reasons to journey to Melbourne in November.

One cannot leave this subject without mentioning the splendid post-graduate work being performed every week by THE MEDICAL JOURNAL OF AUSTRALIA, which never loses an opportunity of allowing the country practitioner to have, at the earliest possible opportunity, the full details of the latest work and thought of the consultants and researches in the capital cities. And the special thanks of Victorian country graduates are due to the Melbourne correspondent whose reports are gems of accuracy, clarity of expressions and attention to detail. It is, perhaps, well for this gentleman, whom I should deem one of our best post-graduate teachers, to know how thoroughly his efforts are appreciated by men in the country.

Yours, etc.,

"WIMMERA."

"ETHANESAL."

SIR: Following Dr. Brown's letter, I would like to mention a few additional points concerning "Ethanesal" anæsthesia. I have administered it about two hundred times, mainly for abdominal or prolonged surgical cases. The method used was closed inhalation through (?) Probyn Williams's inhaler. Induction was either by closed ethyl chloride or open $CHCl_3$. I have noticed that the smell of the "Ethanesal" is very irritating, that is should the induction method be stopped and the "Ethanesal" exhibited too soon, the patient will cough quite violently and then probably suddenly subside into anæsthesia. The induction to deep surgical anæsthesia is rather longer than with closed ether. The patient seems to have better abdominal relaxation, while not being so deep, judging by the pupils, etc. The patient comes out more quickly. The colour is uniformly good. The appearance with closed inhalation is suggestive of a good open ether anæsthesia. The amount of salivation is certainly no more than with open ether. The smell of "Ethanesal" is suggestive of amyl-nitrate and (personally) prolonged administration gives the anæsthetist a frontal headache. Unlike most ether on the market, the action is absolutely uniform. My experience with various batches of ether makes lack of uniformity in anæsthetic power one of its chief faults.

One case which had twice before had ether and $CHCl_3$ by the warmed method and on each occasion had become cyanosed and very worrying, kept a uniformly good colour and was an easy case with $CHCl_3$ and closed "Ethanesal."

The great drawback to "Ethanesal" is cost (nearly three times that of ether). The amount used is about the same.

Yours, etc.,

M. KASNER MOSS.

5, Devonshire Flats,
Milligan Street, Perth,
July 11, 1923.

HYPNOTIC SUGGESTION.

SIR: I accept in due humility the chastisement which Dr. R. A. Parker has inflicted on me. It is well, sometimes, to see oneself as others see us, even though you find yourself classed as a cross between a high-grade moron and Judas Ischariot, and when one has erred and gone astray in forbidden pastures, it is fortunate that there should be some kindly if somewhat unctuous voice to recall one to the straight and narrow path of therapeutic righteousness. Perish also the thought that the innocent minds of the medical fledglings should be corrupted by knowledge of the devilish devices of Mesmer and his followers!

Dr. Parker is the Peter Bell of the profession, though in his letter he appears thinly disguised as "Dr. Conscientious Sawbones." Like a distinguished predecessor, Dr. Lettsom, his duty to his patients is exhausted after he has purged 'em, or sweated 'em, or if the financial position warranted, stuck a knife into 'em. Then, if they are no better, he would rather let them fall into the clutches of the Hicksonites, Christian scientists, mental healers, etc., rather than transfer them to some colleague who believes that there are more things in heaven and earth than are dreamed of in Dr. Parker's philosophy.

But the worthy doctor is not content with crushing such petty fry as myself. He calmly informs all the so-called nerve specialists that they also are either fools or knaves —fools if through ignorance they diagnose a case as "neurotic," knaves if knowing it was not "neurotic" and could be cured by the "sound advice and common sense" beloved of Dr. Parker, they play the part of "Dr. Shylock Sawbones to fill their empty coffers."

Here truly is a Daniel come to judgement, a modern John the Baptist arisen out of East Kew to exhort us to repent and put away the evil thing from among us before it is too late. Alas! this be a perverse and froward generation, and will continue to wander after strange gods in spite of Jeremiahs like Dr. R. A. Parker.

Yours, etc.,

RICHARD ARTHUR.

211, Macquarie Street, Sydney,
July 9, 1923.

P.S.—What the devil do Huxley and Spencer in the same galley as Havelock Ellis and Freud?

THE TREATMENT OF INFLUENZA.

SIR: My experience with many cases of the present epidemic of influenza amongst construction and railway camps as well as the townspeople may prove of interest.

In nearly every case, I used the Public Health Department's influenza vaccine (1,800 millions per cubic centimeter) and almost invariably within twenty-four hours a crisis occurred and a very rapid convalescence. About half a cubic centimetre was the dose employed. In some cases vaccine was refused and I found the most beneficial mixture was as follows:

Pot. Cit. gr. x.
Liq. Amm. Acet. ʒ ii.
Vin. Ipecac. m. vii.
Tinct. Camph. Co. m. xxx.
Tinct. Belladonnæ, m. iii.
Infus. Senegæ, ad ʒss.
ʒss *ex* ʒss four hourly.

This mixture eased the cough and distress and was infinitely superior to "Aspirin" suspensions. If the headache and pains were severe acetyl-salicylic acid and "Phenacetin" proved of service. Dover's powders or barbitone if sleep were interfered with was satisfactory.

Yours, etc.,

A. M. WATKINS.

Griffith, New South Wales,
July 14, 1923.

DOCTOR AND CHEMIST.

SIR: As a pharmacist of fifteen years' experience I would like the opportunity, through your journal, of putting a few points for deep consideration of the medical profession. I know they will be taken in the spirit in which they are given, for it is only a keen desire on my part to help that makes me write these lines. Let me say here that I have had experience in country towns with young, newly fledged doctors and old practitioners as well as in the city and have always found them most anxious to

appreciate any efforts of a pharmacist to be of service to them. There are, of course, some men who will not be told anything. This is not for them. What I want to talk about is this: Does the average doctor realize what happens when he gives a prescription to a patient? He probably thinks it will be taken to a chemist, dispensed and then taken or used. Frequently I have found that where there are no directions on a scrip if the doctor has told the patient what to do, they have forgotten and ask the chemist all about it. Now this is liable to create an awkward position for the pharmacist. His advice about the use of the medicine may not coincide with what the doctor has said and the patient may remember sufficient of the latter to doubt that the pharmacist knows what he is talking about. I am not saying that the pharmacist should give any directions at all, but he should know something, say, about the use of *lotio plumbi cum opio* and many other remedies.

Now with regard to proprietary drugs, there are some, no doubt, that are efficacious and hard to do without, but why inform the patient about them? One could say this is a little expensive, but "I want you to have it." Why write out a scrip in plain English for it? Many patients have said to me: "Why did he order me a patent medicine? I could get that myself; I won't go to him again." Again some smart people read the scrip and buy the article over the counter and naturally get it cheaper when the medicine has not to be put in another bottle and scrip copied in a book. Again also the patient recommends the stuff to friends without considering the probable effect or need of it. Thus does the doctor lose a patient and creates a form of self-medication. This is not in the best interests of either the public or the medical profession. I have frequently found people taking thyreoid tablets, "Hormotone," "Liquor Sedans," even hypnotics, which were originally recommended by people who had first got a scrip for them and found them suitable to their own particular case.

I would like before closing to bring under the notice of the profession the Australian Pharmaceutical Formulary which contains some elegant preparations. For instance *mistura bismuthi et pepsinæ composita, mistura santali composita cum buchu, syrupus* and *elixir glycerophosphatum compositus* and many others which are quite equal if not superior to some of the proprietaries so often ordered on scrips and much cheaper. Hoping that I have put a phase of this subject in a manner that will be acceptable to doctors generally,

Yours, etc.,

SYDNEY UNI. CHEMIST.

Sydney,
July 18, 1920.

Naval and Military.

APPOINTMENTS.

THE following appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Nos. 47, 52 and 54, of July 5 and 26 and August 2, 1923.

Permanent Naval Forces of the Commonwealth.

Sea-Going Forces.

Confirmation in Rank.—SURGEON LIEUTENANT (on probation) CHARLES GEORGE GORDON MOODIE is confirmed in the rank of Surgeon Lieutenant, with seniority in rank of July 12, 1920.

Appointment.—JOHN JOSEPH DONNELLAN, M.B., Ch.M., is appointed Surgeon Lieutenant (on probation), dated June 11, 1923.

Fixing Rates of Pay of an Officer.—SURGEON LIEUTENANT DAVID SHIELDS PRENTICE to be paid rates of pay and allowances prescribed for Surgeon Lieutenant-Commander (on appointment), whilst temporarily acting in that rank. Dated July 9, 1923.

Loan of an Officer to the Royal Navy for Service and Training.—SURGEON COMMANDER (provisional) LEONARD DARBY is loaned to the Royal Navy for the purpose of service and training, under section 35 of the Naval Defence Act.

Resignation.—The resignation of JOHN JOSEPH LAWRENCE MCDONALD of his appointment as Surgeon Lieutenant (on probation) is accepted. Dated June 29, 1923.

Australian Military Forces.

FIRST MILITARY DISTRICT.

Australian Army Medical Corps.

MAJOR P. E. VOSS, M.C., is transferred to the Reserve of Officers, July 1, 1923.

CAPTAIN (provisionally) E. J. SAVAGE is transferred to the Australian Army Medical Corps Reserve and to be Honorary Captain, July 1, 1923.

Award of the Colonial Auxiliary Forces Officers' Decoration.

Unattached List.—COLONEL G. P. DIXON, C.B.E.

SECOND MILITARY DISTRICT.

Australian Army Medical Corps Reserve.

HONORARY CAPTAIN J. J. BRENNAN is retired under the provisions of Australian Military Regulation 152 (1), June 23, 1923.

Australian Army Medical Corps.

CAPTAIN J. A'B. D. BARTON is appointed from the Reserve of Officers, with regimental seniority next after CAPTAIN A. M. ASPINALL, April 1, 1923.

Reserve of Officers.

To be Honorary Captain.—GEORGE MERVYN HAY, April 26, 1916.

To be Captain.—HONORARY CAPTAIN G. M. HAY, October 1, 1920 (this cancels the notification respecting this officer which appeared in Executive Minute No. 287/1921, promulgated in *Commonwealth of Australia Gazette*, No. 61, dated July 28, 1921).

THIRD MILITARY DISTRICT.

Australian Army Medical Corps.

MAJOR (Honorary Lieutenant-Colonel) D. D. CADE, D.S.O., is appointed to command the 5th Cavalry Field Ambulance and is restored to the authorized establishment of Majors, April 11, 1923.

To be Lieutenant-Colonels (provisionally).—MAJORS F. C BURKE-GAFFNEY and H. R. CATFORD, April 20, 1923. The provisional rank of Lieutenant-Colonel granted to MAJORS F. C. BURKE-GAFFNEY and H. R. CATFORD, which appeared in Executive Minute No. 455/1921, promulgated in *Commonwealth of Australia Gazette*, No. 91, dated November 24, 1921, is terminated, April 19, 1923.

To be Lieutenant (provisionally).—GEORGE EDWIN FOREMAN, April 20, 1923. The provisional appointment of LIEUTENANT G. E. FOREMAN is terminated under the provisions of section 15 of the Defence Act, April 19, 1923. HONORARY LIEUTENANT I. V. YOFFA is appointed from the Australian Army Medical Corps Reserve and to be Lieutenant, provisionally, May 7, 1923. MAJOR (Honorary Lieutenant-Colonel) B. M. SUTHERLAND, O.B.E., is transferred to the Reserve of Officer and to be Lieutenant-Colonel, July 1, 1923. MAJOR (provisionally) S. G. L. CATCHLOVE is transferred to the Reserve of Officers and to be Captain, April 20, 1923. CAPTAIN F. W. FAY, M.C., is transferred to the Reserve of Officers, July 1, 1923. CAPTAIN (provisionally) W. E. HARRISON and LIEUTENANT (provisionally) J. H. KELLY are transferred to the Australian Army Medical Corps Reserve and to be Honorary Captain and Honorary Lieutenants, respectively, April 20, 1923. The resignation of CAPTAIN S. G. STRAHAN of his provisional appointment is accepted, April 19, 1923. The provisional appointments of CAPTAIN H. V. CANTOR and LIEUTENANT R. E. BUTCHART are terminated under section 15 of the Defence Act, April 19, 1923.

To be Captains.—HONORARY CAPTAIN F. L. APPERLY, from the Australian Army Medical Corps Reserve, and DONALD MURRAY ROSS, July 1, 1923.

To be Captain (provisionally).—HONORARY CAPTAIN F. K. NORRIS, from the Australian Army Medical Corps Reserve, July 1, 1923.

LIEUTENANT-COLONEL (provisionally) F. C. BURKE-GAFFNEY relinquishes the command of the 6th Field Ambulance, June 30, 1923, and is transferred to the Reserve of Officers and to be Major, July 1, 1923.

Australian Army Medical Corps Reserve.

HONORARY CAPTAIN C. H. MOLLOY is placed on the Retired List with the rank of Captain and with permission to wear the prescribed uniform, July 11, 1923; HONORARY CAPTAIN A. L. KENNY is retired under the provisions of Australian Military Regulation 152 (1), July 29, 1923.

Obituary.

GEORGE EDWARD RENNIE.

IT is with great regret that we have to announce the death of Dr. George Edward Rennie. Dr. Rennie had been seriously ill for over five weeks and his condition from the first left very little hope of his recovery. He died on August 10, 1923.

Proceedings of the Australian Medical Boards.

NEW SOUTH WALES.

THE undermentioned have been registered under the provisions of the *Medical Act, 1912 and 1915*, as duly qualified medical practitioners:

BLACK, ERNEST, L.R.C.P. (Edin.), 1884; L.R.C.S. (Edin.), 1884, 122, Wycombe Road, Neutral Bay.

BRANSON, HARROLD RANDOLPH, M.B., Bac. Surg., 1921 (Univ. Adelaide), Broken Hill.

HILL, ARTHUR ROBERT, M.B., Bac. Surg., 1916 (Univ. Glasg.), Kenilworth Road, Lindfield.

MOODIE, CHARLES GEORGE GORDON, M.B., Bac. Surg., 1910 (Univ. Melbourne), Suntop Flats, Manly.

SINCLAIR, WILLIAM MALCOLM, M.B., Bac. Surg., 1911 (Univ. Adelaide), Bent Street, Lindfield.

SMITH, VIVIAN RAMSAY, M.B., Bac. Surg., 1913 (Univ. Edin.), University Club, Sydney.

For Registration of Additional Qualifications.

SMITH, CLIVE NIGEL, F.R.C.S. (Eng.), 1920.

SUCKLING, FRANK MARTIN, D.P.H., 1910 (Univ. Sydney).

Medical Appointments.

DR. NORMAN WILLIAM KATER (B.M.A.) has been appointed a Member of the Legislative Council of New South Wales.

* * * *

DR. A .T. B. JONES has been appointed Acting Surgeon to the Yatala Labour Prison, South Australia.

* * * *

DR. G. H. BARTLETT and DR. M. O'BRIEN (B.M.A.) have been appointed District Medical Officers and Public Vaccinators at Shark Bay and at Menzies, respectively, in Western Australia.

* * * *

THE following honorary appointments at the Public Hospital, Fremantle, Western Australia, have been gazetted: DR. W. E. BLACKALL (B.M.A.), DR. E. C. EAST (B.M.A.), DR. A. H. GIBSON (B.M.A.), DR. C. D. KERR, DR. D. TREGONNING (B.M.A.) and DR. E. R. DERMER, as Medical Officers; DR. C. MORLET, D.S.O. (B.M.A.), as Eye Specialist; DR. W. T. DERMER (B.M.A.), as Consultant.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii.

PRINCE OF WALES HOSPITAL, RANDWICK, SYDNEY: Junior Medical Officers.

RICHMOND DISTRICT HOSPITAL, NORTH QUEENSLAND: Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmain United Friendly Societies' Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phœnix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B. M. A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

AUG. 21.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
AUG. 21.—Illawarra Suburbs Medical Association, New South Wales.
AUG. 24.—Queensland Branch, B.M.A.: Council.
AUG. 28.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.
AUG. 30.—South Australian Branch, B.M.A.: Branch.
AUG. 31.—New South Wales Branch, B.M.A.: Branch.
SEP. 5.—Victorian Branch, B.M.A.: Branch.
SEP. 6—New South Wales Branch, B.M.A.: Nomination of two candidates to Federal Committee.
SEP. 7.—Queensland Branch, B.M.A.: Branch.
SEP. 11.—New South Wales Branch, B.M.A.: Ethics Committee.
SEP. 12.—Western Australian Branch, B.M.A.: Council.
SEP. 12.—Melbourne Pædiatric Society.
SEP. 14.—New South Wales Branch, B.M.A.: Clinical Meeting.
SEP. 14.—Queensland Branch, B.M.A.: Council.
SEP. 14.—South Australian Branch, B.M.A.: Council.
SEP. 14.—Central Southern Medical Association, New South Wales.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad *per annum* payable in advance.